Journal of the

Volume XVII **Number 8**

Committee on Publications

JOHN B. HEINZ *Chairman*

JOHN J. DUGAN

ROBERT P. FISCHELIS

GLENN L. JENKINS

HUGO H. SCHAEFER

☆

General Manager

ROBERT P. FISCHELIS

Editor

ERIC W. MARTIN

Associate Editors

ROBERT I. BISCHOFF

SAMUEL W. GOLDSTEIN

Staff Associates

GEORGE B. GRIFFENHAGEN

PAUL F. PARKER

JUSTIN L. POWERS

CHARLES C. RABE

Assistant to the Editors

CATHERINE WYGOD

Circulation

FELIX B. GORRELL

Membership

MARY LOUISE BERGNER

Advertising Manager

ROBERT I. BISCHOFF

☆

© *Copyright 1956*

American Pharmaceutical Association
2215 Constitution Ave., N. W.
Washington 7, D. C.

American Pharmaceutical Association

Practical Pharmacy Edition

Table of Contents **AUGUST 1956**

FEATURES

Straight From Headquarters 496
50th Anniversary of the Federal Food and Drugs Act . . 506
Past and Present Status of Pharmacists in the Army . . . 508
National Pharmacy Week 510
Summary of Legislation Affecting Pharmacy 513
Ointments
- The *In Vitro* Activity of Some Antibiotic Ointments Containing Hyaluronidase 514
- Certain Polyethylene Oxide Esters as Emulsifying Agents in Ointment Bases 517
- A Study of Nonionic Surfactants in a Hydrophilic Ointment Base . . 519
- The Water Absorptive Power of Some Ointment Bases 522

Pharmacists in Civil Defense 526
Pharmaceutical Brainstorming 535
Health News
- Reducing Diet 539
- Hospital Survey in Michigan 540
- Patients' Medical Records 540
- Personal Health Log 540
- Urine Sugar Tests—Warning 540

DEPARTMENTS

A.PH.A. Branches . . . 504
FDA Criminal Actions . 534
Letters 494
Membership Records . 541
New and Nonofficial Remedies 542
News and Notes . . . 500
New Prescription Products 545
Prescription Information Service 537
Progress in Medicine . 538
Tools of the Apothecary 530
Typical Days 528
Washington Views . . 492

The Journal of the American Pharmaceutical Association is published monthly by the American Pharmaceutical Association in two editions: Scientific Edition and Practical Pharmacy Edition, under the supervision of the Committee on Publications of the Council of the Association. Publication Office: 20th and Northampton Streets, Easton, Pennsylvania.

Executive, Editorial, and Advertising Offices: 2215 Constitution Avenue, N.W., Washington 7, D. C. Robert P. Fischelis, Secretary and General Manager.

ANNUAL SUBSCRIPTION—Journal of the American Pharmaceutical Association, Practical Pharmacy Edition and Scientific Edition combined: United States, Canada, Pan America, Spain and Philippines, $10.00; other foreign, $12.00.

Journal of the American Pharmaceutical Association, Practical Pharmacy Edition alone; United States, Canada, Pan America, Spain and Philippines, $5.00, other foreign, $6.00.

Journal of the American Pharmaceutical Association, Scientific Edition alone: United States, Canada, Pan America, Spain and Philippines, $6.00, other foreign, $7.00.

Members of the American Pharmaceutical Association receive the combined subscription as a part of their annual dues. Members may request omission of either edition, but this will not reduce the amount of the annual dues.

Single copies: Journal of the American Pharmaceutical Association, Practical Pharmacy Edition, United States, Canada, Pan America, Spain and Philippines, $0.50; other foreign, $0.60. Scientific Edition, United States, Canada, Pan America, Spain and Philippines, $0.60; other foreign, $0.70.

Back issues of unbound Journals same price as current volume. Subscription rates are subject to change without notice.

CHANGE OF ADDRESS—Members and subscribers should bear in mind that second class matter is not forwarded by the Post Office, and should supply both the Post Office and the American Pharmaceutical Association with any change of address immediately upon its occurrence.

CLAIMS for missing numbers will not be allowed if received more than 60 days after the date of issue, or if loss was due to failure to give 30 days' notice of change of address.

Claims asserting that Journals are "missing from files" cannot be allowed.

The Association cannot accept responsibility for foreign delivery when its records indicate shipment has been made.

ENTERED as second class matter January 23, 1917, at the Post Office at Easton, Pennsylvania, under the act of March 3, 1879, as 24 times a year; Scientific Edition monthly on the 5th; Practical Pharmacy Edition monthly on the 20th. Acceptance for mailing at a special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized July 10, 1918.

Washington Views

A total of 82,196,382 cc. of Salk polio vaccine has been released to date, and upon the recommendation of Dr. Leonard A. Scheele, Surgeon General of the U.S. Public Health Service, Marion B. Folsom, Secretary of Health, Education, and Welfare, announced the termination of Federal allocations of polio vaccine on a state-by-state basis. Manufacturers and other distributors are now free to sell it through normal distribution channels.

The Food and Drug Administration reports that nearly 200 tons of unfit foods were removed from the market in June through Federal court seizures including 10 tons of beans contaminated with a fluorine rat poison.

The Federal Trade Commission has launched, under the direction of Dr. Quincy Adams, the second phase of its investigation of the alleged conspiracy to maintain elevated prices of antibiotics by the suppliers.

Val Peterson, the Federal Civil Defense Administrator, as a result of Operation Alert 1956 has declared, "Neither this nation nor any other nation will ever be wholly ready to meet the crushing impact and the savage consequences of a nuclear attack."

The Court of Customs and Patent Appeals has ruled that the "received" date printed at the end of an article in a publication can no longer be employed by the U.S. Patent Office to bar a patent to an inventor, in a decision handed down in favor of Ciba's Director of Research, Dr. Emil Schlittler, et al.

A referee of the Appeals Council of the Social Security Administration, Peter J. Hoegen, ruled today that employment by the Communist Party in the United States is covered under the Social Security Act.

The Defense Department has established a special committee to undertake a review and possible revision of the principles of indirect cost determination for research and development contracts with colleges and universities.

According to a survey released by the Veterans Administration, at the Northampton, Mass., Hospital discharges of former chronically ill mental patients have increased 36% as a result of treatment with tranquilizing drugs.

. . . and last-minute news

U.S. Senator Robert Humphreys (D.), a Kentucky pharmacist who owned a pharmacy in Frankford, Ky., was chosen to represent the U.S. Government at the inauguration of the President of Bolivia. On his visit to Peru and Bolivia he extended an invitation from the A.Ph.A. to the presidents of the pharmaceutical associations of these countries to attend the Fourth Pan-American Congress of Pharmacy and Biochemistry to be held the week of November 3, 1957 in Washington, D.C.

Dr. Leroy E. Burney succeeds Dr. Leonard A. Scheele as Surgeon General of the U.S. Public Health Service

The American Pharmaceutical Association has appropriated a $5,000 contribution to the Health News Institute for the balance of 1956 and 1957 and has made available to HNI its library, laboratory, editorial, and other staff facilities which are unequaled by any other national organization in the field of pharmacy (see page 496).

The increasing gross U.S. dental bill of more than $1,250,000,000 in 1955 should be reduced by research being financed by a $4,000,000 Government grant to dental schools and research centers in the U.S.

Dr. Warren E. Weaver on July 1 succeeded Dr. R. Blackwell Smith, Jr., as Dean of the Medical College of Virginia School of Pharmacy. Dr. Smith is now President of the Medical College of Va.

Dr. Jack E. Orr, former Dean of the School of Pharmacy at Montana State University, has been appointed to succeed retiring Dean Forrest J. Goodrich at the University of Washington College of Pharmacy.

The Ferris Institute College of Pharmacy is in the process of selecting a Dean to succeed Dean Ralph M. Wilson.

American Colleges and universities must double facilities in the next 15 years, according to the Educational Policies Commission of the National Education Association.

The Director General of WHO, Dr. M. G. Candau, reports a tremendous toll of death and disability is still levied each year by plague, sleeping sickness, yellow fever, malaria, and many other diseases spread by fleas, lice, mosquitos, and other arthropods.

LETTERS

Convention Issue

Sir:

I write to thank you for the 2 copies of the May 1956 JOURNAL of the AMERICAN PHARMACEUTICAL ASSOCIATION, *Practical Pharmacy Edition*, containing my brief talk out in Detroit on April 12th [see page 327].

By making that attempt and going out to Detroit I learned a lot and you all were very good to me.

Your JOURNAL is most interesting and I have enjoyed looking over the issue carefully, studying the pictures of the nice friends I made in Detroit. The group picture of myself with Dr. Miller and Dr. Powers is excellent [see page 336].

I also enjoyed Mr. Wallace Janssen's fine speech on "Fifty Years of Progress in Food and Drug Protection" [page 339]. He is a fine man and it is a pleasure to know him.

So thanks for this souvenir of my trip to your Convention.

Washington, D.C. MRS. HARVEY W. WILEY

Sir:

Your convention issue of May was a very good one indeed. Congratulations on a very concise and informative bit of reporting.

It would seem to me that the JOURNAL could be an invaluable aid to all the Sections of the A.PH.A. I think the JOURNAL should devote several pages of each issue to a particular Section and tell who its leaders are, the aims of each Section, along with some of the problems confronting each group. I think by doing this you will foster a great deal of interest in the Sections, especially among the younger people who belong to the A.PH.A. and who are very interested in the organization but who have been unable to attend the national meetings.

Let the members have the name and addresses of the various Section officials and invite correspondence. Foster year-round interest in these Sections so that at convention time their reports will be progress reports instead of the same old dry reiteration of lofty future aims and goals.

The JOURNAL could and should be the source of coordination for all Section activity and a means to insure that all are pulling together.

Best wishes for your continued success as editor.

Geneva, Ill. MARLIN YATES

Editor's Note: The leaders of the A.PH.A. Sections are urged and encouraged to increase participation in their respective activities and to disseminate information concerning their aims, programs, and problems. Future issues of THIS JOURNAL will attempt to help them in this regard. A list of the A.PH.A. Sections and their officers appears on page 316 of the May issue.

Grocer in Drug Error

Sir:

I am writing this letter in the hope that it will be of assistance to you in bettering the public's opinion of pharmacy.

The following news item speaks for itself.

N.J. TO SUE GROCER ON DRUG SALE ERROR

The New Jersey Attorney-General's office last fortnight was preparing to file a formal complaint against a Red Bank, N.J., grocer for illegally dispensing an external drug preparation said to have caused convulsions in two children.

It was learned that the board's investigation indicates that a Red Bank housewife ordered a bottle of castor oil from the grocer—and received, instead, an unlabeled container of camphorated oil. Two of the woman's infant children are reported to have suffered convulsions after swallowing doses of the product.

The State board is preparing a report on the case for the Attorney-General. [*American Druggist*, July 2, 1956]

It is now up to us to see that the public hears about this. It is my suggestion that full-page advertisements be placed in magazines and newspapers citing the above case and then giving the training that a pharmacist has. The advertisement could then go on to warn the public that unless they purchase their drugs and medicaments in a pharmacy more of the aforementioned accidents will undoubtedly happen, some of them having even more serious results.

If money is not available for this most important project, I suggest that funds be solicited from members of both the student and senior branches of the A.PH.A.

I wish to add that I am at the present time attending the Brooklyn College of Pharmacy and am a member of the Student Branch of the A.PH.A.

Brooklyn, N.Y. GEORGE WEINTRAUB

Antidotes Manual

Sir:

Please send me "Manual No. 101." We pharmacists at the hospital pharmacy, Fort Riley, Kan., are in dire need of the information this manual offers. We are most appreciative that we are able to obtain this important service from the A.PH.A.

Ft. Riley, Kan. JACK MARTIN WOLFE Sp/3

Compendia Offered

Sir:

Does anybody want old U.S.P.'s and N.F.'s? We have copies of U.S.P. X, XI, XII, XIII, and three XIV's; also, two copies of N.F. VI, two of VII, two of IX, and two of VIII that we do not want but hate to throw away.

11311 Shaker Blvd. (MRS.) EVLYN GRAY SCOTT
Cleveland 4, Ohio *Chief Pharmacist*
St. Luke's Hospital

helps keep their dispositions sunny...

CALADRYL®

Calamine and Benadryl® Hydrochloride Lotion and Cream

for sunburn relief

CALADRYL eases the burning and itching accompanying mild sunburn, and cools and soothes prickly heat. Antihistaminic-antipruritic properties of CALADRYL also bring welcome relief from itching and discomfort of mild poison ivy and poison oak, insect bites, chicken pox, and minor skin irritations.

CALADRYL is pleasant and easy to use. It does not stain clothing and resists smearing, yet rinses off easily.

Stock up on CALADRYL *now and brighten your profit picture.*

CALADRYL Lotion, supplied in 6-ounce bottles.
CALADRYL Cream, supplied in 1½-ounce collapsible tubes.

PARKE, DAVIS & COMPANY · DETROIT, MICHIGAN

50034

STRAIGHT FROM HEADQUARTERS

ROBERT P. FISCHELIS, SECRETARY

Health News Institute Receives A.Ph.A. Support

THE AMERICAN PHARMACEUTICAL ASSOCIATION was one of the organizations invited to send representatives to the conference called by the American Drug Manufacturers Association for the purpose of discussing a public relations program intended to place before the people of the United States more factual information about the profession of pharmacy and the drug industry, which would serve to correct some of the false impressions made by writers of sensational stories based on isolated violations of ethics and the law relating to the production and distribution of drugs.

The Secretary of the A.PH.A. has attended two meetings called by the A.D.M.A. The first meeting included representatives of most of the national pharmaceutical and related organizations, such as the American Medical Association, the American Hospital Association, and others. The second meeting included representatives of the public relations directors of most of the larger pharmaceutical manufacturing houses devoting their activity to the production of prescription products.

At the first meeting it was proposed that the Health News Institute be formed with a director who could assemble, screen, and make available to feature writers and others the pertinent facts about the drug industry and the profession of pharmacy. It was the sense of this meeting that popular writers need better information to portray what is happening in the field of drug therapeutics and how the profession of pharmacy and the drug industry are responding to new challenges in the production and distribution of drugs.

The results of the discussions at this meeting were reported to the Council of the AMERICAN PHARMACEUTICAL ASSOCIATION, and that body voted to give sympathetic consideration to the proposal to set up a permanent public relations office. It instructed its representative to obtain further information as to the procedures to be adopted, the finances required, and the representation to be accorded various groups who are interested in this project.

The second meeting, which was attended by representatives of the national organizations interested in the project as well as the public relations directors of the larger manufacturing houses, developed some interesting discussion as to procedures and methods of cooperation. It became clear early in the discussion that each of the manufacturers holding membership in the American Drug Manufacturers Association expected to continue its own public relations activities, much of which has of course been unique with various firms, and has taken the form of highly educational television and radio broadcasts, popular magazine advertising of an institutional nature, and contact with science writers and others who are in a position to publicize the events in which these manufacturers are interested.

Each of the representatives of the national organizations having a public relations program, and each of the manufacturers represented presented their points of view and appeared to be greatly interested in creating a better climate for the reception of information about the drug industry and the profession of pharmacy in general. The conclusion was that there is a good possibility for doing a collective type of work which will benefit all concerned and be of service to the public at large.

The American Drug Manufacturers Association and the American Pharmaceutical Manufacturers' Association will jointly contribute $100,000 to this project, and it is expected that a total of $150,000 to $200,000 will be raised annually to maintain a central office and to issue essential material to the press, radio, and television from time to time.

Chet Shaw, formerly Managing Editor of *Newsweek*, has been engaged as the Director of the Health News Institute, and it is the intention of the A.PH.A. to cooperate closely with Mr. Shaw and his staff in providing information which will be beneficial to members of the AMERICAN PHARMACEUTICAL ASSOCIATION as well as others in publicizing pharmaceutical activities in behalf of public health.

The emphasis which the Director of this Institute expects to provide is on the professional and scientific achievements of pharmacists and the drug industry, in such a way as to serve editors and writers to orient themselves in a field which admittedly is a difficult one for the average newspaperman or journalist.

The Council of the AMERICAN PHARMACEUTICAL ASSOCIATION has voted to make available the sum of $5,000 as a contribution to the public relations program which is being sponsored by the American Drug Manufacturers Association through the Health News Institute. This appropriation covers the ASSOCIATION'S contribution for the balance of 1956 and 1957.

At the Detroit Convention the House of Delegates passed the following resolution:

> Resolved, That the Council of the AMERICAN PHARMACEUTICAL ASSOCIATION be requested to study immediately the proposals of the American Drug Manufacturers Association, the New York State Pharmaceutical Association and other groups and organizations, advocating the establishment of an industry-wide public relations bureau dedicated to advancing the interests of pharmacy and to bringing before the public our achievements and contributions to the public health; this study to be conducted for the purpose of determining the extent of our participation in such activities.

The action of the Council in making funds available and approving active participation of the A.PH.A. headquarters staff in this activity is a result of implementation of this resolution.

The observance of National Pharmacy Week October 7–13, has been an important and powerful contribution to pharmacy's public relations program, and additional activities in the public relations field supplied by the AMERICAN PHARMACEUTICAL ASSOCIATION in cooperation with other groups will be integrated into any general public relations program devised for the industry and the profession.

Our members are invited to send ideas and views on the current developments in pharmacy and the drug industry to the headquarters office of the ASSOCIATION for transmittal to the Health News Institute.

A.Ph.A. Building Fund Needs Your Immediate Attention

AS OF THE end of July, contributions to the A.PH.A. Building Fund for the addition of a much needed annex to the present headquarters have reached a total of about $133,000. This is less than one-half of the amount necessary to provide for additional floor space that is so badly needed at the Washington Headquarters Building of the ASSOCIATION to make it possible to render the increasing services demanded of the ASSOCIATION by the membership.

The number of contributors so far, representing individual members of the ASSOCIATION, indicates that the $300,000 required could be raised very promptly if every member were to make his or her contribution now.

We are certain that all of the members of the ASSOCIATION will eventually make their contribution, and the House of Delegates of the ASSOCIATION took action to assure unanimous support when it unanimously passed the following resolution at the Detroit Convention:

> *Whereas*, The American Institute of Pharmacy, Headquarters Building of the AMERICAN PHARMACEUTICAL ASSOCIATION, is the outstanding symbol of professional pharmacy in America, and
>
> *Whereas*, the increased membership and services rendered by the A.PH.A. in recent years have necessitated using museum space and other sections of the building for office facilities, thus converting to functional purposes space which was designed to memorialize the professional and ethical aspects of pharmacy, and
>
> *Whereas*, even with such encroachment on space never intended for office use, ASSOCIATION activities have outgrown present facilities, be it
>
> **Resolved**, that the House of Delegates and the Council plan on seeking voluntary subscriptions to defray the cost of an addition to the present building amounting to about $275,000 and that in the event such voluntary subscriptions fail to reach the desired goal, a modest assessment be placed upon the active members of the ASSOCIATION.

It has been the hope of the officers and the Council of the ASSOCIATION that voluntary contributions would be received in such numbers and amounts as to make the assessment unnecessary, and past experience indicates that many members have merely postponed a voluntary contribution. It will be appreciated therefore if each member would take time out now to send a check for what-

(Continued on next page)

Straight From Headquarters

• • • • • • • • • • • • *from page 497*

ever amount he feels able to contribute and thus send this campaign over the top as promptly as possible.

Nearly 2,000 Recent Graduates Become Active Members

IT IS with particular pleasure that we welcome recent graduates of our colleges of pharmacy to active membership in the AMERICAN PHARMACEUTICAL ASSOCIATION. With graduation exercises completed in all of these colleges, we now have very close to two thousand 1956 graduates who have taken advantage of the three-year program of active membership extended to all senior pharmacy students who were members of a Student Branch of the A.PH.A. at any of the seventy-five accredited colleges of pharmacy in the United States.

As future members of the profession, these recent graduates are about to find their place in the pharmaceutical sun. Some may undertake the establishment of their own pharmacy immediately, others may be intent on gaining the legally required practical experience plus sufficient additional experience and contact with various types of pharmacies in order to add to the formal education which they received at a college of pharmacy.

There are, of course, many others who will enter the field of manufacturing pharmacy, either in the laboratories of pharmaceutical manufacturers or on the sales and detail forces of these organizations, or perhaps in the administrative departments for which they have a particular aptitude. Quite a number will go into hospital pharmacy, a field of growing interest and responsibility for young women as well as young men who have completed their pharmacy training.

Quite a few of our recent graduates will wish to continue their studies on a graduate level, and for them some of our most prominent colleges of pharmacy have provided programs of education on a graduate level which are stimulating and will lead to challenging and productive future opportunities, either in industry, government, teaching, research, or administrative work.

We congratulate the 1956 graduates on the completion of their formal education and wish them all possible success in the work they choose to undertake.

Wherever you may be launching your career, and in whatever field you may choose to contribute your professional attainments, the AMERICAN PHARMACEUTICAL ASSOCIATION stand sready to serve you through its publications, its headquarters facilities and staff, and especially by providing opportunity for participation in our annual meetings and in the meetings of the ASSOCIATION's Local Branches.

Dr. Scheele Leaves Public Health Service

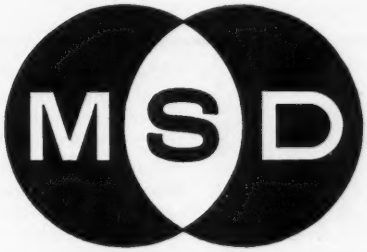
AUGUST 1 marked the departure of Dr. Leonard A. Scheele from the U.S. Department of Health, Education and Welfare, where he has served more than eight years as Surgeon General of the Public Health Service. It is of particular interest to the profession of pharmacy and the drug industry that he has elected to accept the presidency of a pharmaceutical manufacturing organization since practically his entire professional life up to now has been spent in the service of the Federal Government.

As time passes and the practice of medicine, as well as the development of drug products, becomes more and more scientific, the drug industry is bound to attract more scientists, physicians and other professional personnel skilled in solving the problems of prevention and treatment of disease.

The changing character of therapeutic agents now in use for the prevention, mitigation and cure of disease has called for an ever-increasing emphasis on highly scientific laboratory and clinical research and the application of the fruits of such research to combating disease.

There has been a recent tendency in the drug industry to attract to the management, as well as to the research activities of the firms engaged in providing the new remedies, personnel with a professional background, and to organize medical and scientific research departments headed by outstanding figures who can reach independent conclusions and advise management competently on laboratory and clinical findings.

The injection of an unbiased scientific and professional point of view into the deliberations of those who are presumed to have a strong business bias is in itself good business and a tribute to the recognition on the part of corporate management that what is good for the health of the people is good for the drug industry.



MERCK SHARP & DOHME

DIVISION OF MERCK & CO., INC.

In name as well as in fact

On August 1, 1956, Sharp & Dohme, the pharmaceutical and biological division of Merck & Co., Inc., adopts the name "Merck Sharp & Dohme" and a new trademark to reflect the teamwork which has already produced significant new medical products. • Developing modern medical products and making them widely available requires teamwork of the highest order in research, production, and distribution. The desire to achieve this unity of effort prompted the merger of Merck & Co., Inc., and Sharp & Dohme, Inc., three years ago. • Merck Sharp & Dohme—combining in name as well as in fact the traditions and experience of two time-honored leaders in the medicinal field—offers bright promise for further advances in helping physicians conquer disease.

MERCK SHARP & DOHME
Pharmaceuticals • Biologicals
Division of Merck & Co., INC.
Philadelphia 1, Pa.

News *and* Notes . . .

ASSOCIATIONS

California Pharmaceutical Association officers installed at the 50th annual convention are: front, l. to r., M. Winton, 3rd VP, G. A. Sargenti, 1st VP, D. C. Norton, Pres., and M. E. Wright, 2nd VP; top, l. to r., A. Tognini, H. Gordon, D. K. Hedgpeth, B. Kingwell, M. Pine, J. Rosselli, C. A. Stewart, D. Conness, Nat Lippman, and L. L. Stein, Jr.

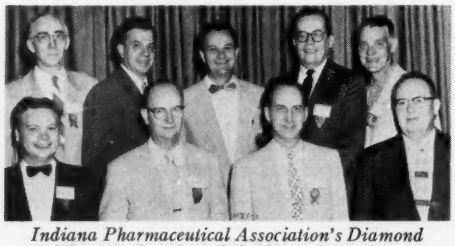
District of Columbia Board of Pharmacy has elected *John E. Donaldson* as President to succeed *F. Royce Franzoni*, who is retiring. Mr. Donaldson is Director of the Prescription and Professional Service Department for Peoples Drug Stores, a past President of the District Pharmaceutical Association, and is currently a member of the A.PH.A. Committee on Legislation.

Indiana Board of Pharmacy's new member is *M. Maurice Goodnight* of Lafayette. Mr. Goodnight, whose father served on the Board before him, is a former President of the Indiana Pharmaceutical Association.

International Rho Pi Phi Pharmaceutical Fraternity has named *Dr. Paul H. Hoch*, nationally known research psychiatrist and Commissioner of Mental Hygiene for New York State, as the "Man of the Year."

Massachusetts State Pharmaceutical Association—*Henry S. McNeil*, President of McNeil Laboratories and a keynote speaker at the 75th annual Association convention, told an estimated 1,000 pharmacists assembled for the occasion that progress in pharmacy within the next ten years ultimately "rests in the hands of the retail pharmacist."

Medical Exhibitors Association—*Donald F. Robertson*, Manager of Products Marketing for *Sharp & Dohme*, Division of Merck & Co., has been elected President of the Association. Representing approximately 200 companies, the Association specializes in technical exhibits for medical conventions.



Indiana Pharmaceutical Association's Diamond Jubilee meeting installed (front, l. to r.,) T. Miller as 3rd VP, I. Holder, Pres., M. Skinner, 2nd VP, G. Hinshaw; (top, l. to r.) G. Lanigan, W. Sielski, R. Heikowsky, D. Wood and K. Lamont.

Monmouth-Ocean County (N.J.) **Pharmaceutical Society**'s new President is *Jack Meisler* of Keyport. The Society has been active of late in institutional newspaper advertising.

National Conference of State Pharmaceutical Association Secretaries—The Public Relations Committee of the N.C.S.P.A.S. met in the Hotel Statler, Washington, D.C., July 25 with 12 of the leading pharmaceutical manufacturers of the U.S. The retail pharmacy public relations program which is being developed by the State Secretaries was discussed in considerable detail and the manufacturers unanimously expressed willingness to help. The final plans and recommendations concerning the tools needed and how the manufacturers can aid in implementing the program will be presented at the September meeting of the N.C.S.P.A.S. in Cincinnati.

National Foundation for Infantile Paralysis—A new 32 page publication entitled "New Information for Physicians on the Salk Poliomyelitis Vaccine" edited by *Dr. Hart E. Van Riper*, Medical Director of the Foundation, now reaches 200,000 physicians in the United States. The changing picture of poliomyelitis in the U.S.A. is described at length with ideal dosage schedules, contraindications, and statistical analyses.

National Health Council—*Dr. Francis J. Braceland*, Psychiatrist-in-Chief of the Institute of Living in Hartford, Conn., and President of the American Psychiatric Association, has been appointed Chairman of the 1957 National Health Forum Committee by *Dr. Leona Baumgartner*, President of the National Health Council and Commissioner of New York City. The 1957 Forum, to be held in Cincinnati, Ohio, March 20 and 21, will focus on mental health in America with emphasis on constructive actions and attitudes that may be taken by all health organizations. . . *Smith, Kline & French Laboratories* has become the 51st member of the National Health Council and is the first pharmaceutical concern to share in the cooperative program of the Council, active members of which are voluntary health organizations and professional societies in the health field.

New Jersey Pharmaceutical Association installed the following new officers at the closing session of its 86th annual convention. *Jacob Eisen*, President; *Benjamin Schultz*, First Vice President; *Frank Pinchak*, Second Vice President; *David I. Cohen*, Treasurer.

New York State Pharmaceutical Association—*Alphonse C. Chimera* of Buffalo was elected President of the Association on June 14 at its 78th annual Convention held at Saranac Lake, N.Y.

Virginia Pharmaceutical Association—*Dr. R. Blackwell Smith, Jr.*, President-elect of the Medical College of Virginia, was elected "Pharmacist of the Year" at the Association's Diamond Jubilee Convention held in June.

Special Libraries Association—*Katharine L. Kinder*, Chief Librarian of the Johns-Manville Research Center, was installed as President of Special Libraries Association at the annual business meeting

held in
ceutical
man at
Olsen is
oratories.

COLLEG

Brookl
Jeffries
(June 1
streamli
tional p
store op
scription
has been
gation a
derivativ

Massa
Breck, P
cently e
Associati

New
Dr. Rob
honorary
dress, "
tions," D
that, "T
related t
manifest

Rutge
its Newa
in New
an expa
projects

St. Jo
to honor
of Pharm
school si
year.

Univer
degree
Executiv
ceutical
1954–55
his contr
30 years
period w

Univer
Associati
Presiden
George
Secretary

Univer
3rd Co
Medical
on the r
Dr. Vlad
tice at t
of two d
diovascu
He stres
the cond
. . .The
Aging to

August,

held in Pittsburgh, Pa., on June 7. The Pharmaceutical Section elected *James L. Olsen, Jr.*, as Chairman at its meeting in Pittsburgh on July 4. Mr. Olsen is librarian at *Smith, Kline & French Laboratories*.

COLLEGES

Brooklyn College of Pharmacy—*Professors S. B. Jeffries* and *I. Greenberg* [see THIS JOURNAL **17,** 383 (June 1956)] have been retained by Macy's to streamline their prescription department operational procedures. The New York department store operates one of the nation's top volume prescription departments .... *Professor Arnold Urdang* has been awarded a research grant for the investigation and synthesis of O-thymotic acid sulfur derivatives.

Massachusetts College of Pharmacy—*Edward J. Breck*, President of John H. Breck, Inc., was recently elected President of the College's Alumni Association.

New England College of Pharmacy has awarded *Dr. Robert L. Swain*, Editor of *Drug Topics*, the honorary degree of Doctor of Science. In his address, "Give Thought to Your Professional Obligations," Dr. Swain pointed out to the graduating class that, "The future outlook of our profession is vitally related to the attitudes which we as pharmacists manifest toward it."

Rutgers College of Pharmacy will soon move from its Newark location to the Science Center campus in New Brunswick. *Dean Roy A. Bowers* foresees an expanded program of pharmaceutical research projects when this occurs.

St. John's University tendered a testimonial dinner to honor *Dr. John L. Dandreau*, Dean of the College of Pharmacy. Dr. Dandreau, who has headed the school since its founding in 1929, is retiring this year.

University of Arizona has conferred an honorary degree of Doctor of Science on *Newell Stewart*, Executive Vice President of the National Pharmaceutical Council, New York. Dr. Stewart, who was 1954–55 President of the A.PH.A., was honored for his contributions in a number of fields during nearly 30 years of residence in Arizona, including a 4 year period when he served as mayor of Phoenix.

University of Illinois College of Pharmacy Alumni Association new officers are: *Samuel A. Brody*, President; *Milton G. Christy*, Vice President; *Dr. George L. Webster*, Tresaurer; *Samuel Shkolnik*, Secretary.

University of Michigan—Speaking before the 3rd Conference on Cardiovascular Teaching in Medical Schools recently held at Estes Park, Colo., on the role of health departments in chronic illness, *Dr. Vlado Getting*, Professor of Public Health practice at the University of Michigan, said that one out of two deaths from illness in the U.S. is due to cardiovascular (heart and circulatory system) disease. He stressed that people ought to be more aware of the conditions which open the door to these ailments. ...The University's 9th annual Conference on Aging took place July 9–11.

GOVERNMENT

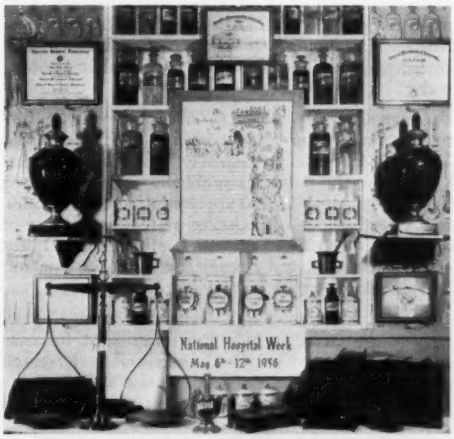
Army Medical Service Corps.—*Col. Bernard J. Kotte*, a pharmacist who formerly served as Executive Officer of the Supply Division in the Office of the Surgeon General in Washington, has been named Director of the Brooke Army Medical Center Supply Division. Brooke Army Medical Center at Fort Sam Houston, is the Army's largest medical installation with one of the most modern supply and warehouse operations in the armed services.

U.S. Public Health Service has just issued a new publication in the heart disease field, "Selected References on Cardiovascular Disease." References are arranged in sections according to major interests in the field such as rehabilitation, emotional aspects, patient education, films and other audiovisual aids. The 52-page booklet is available from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., for 25¢ a copy.

HOSPITAL PHARMACY

National Hospital Week Pharmacy Display Winners—The Public Relations Committee of the AMERICAN PHARMACEUTICAL ASSOCIATION announces that Frank F. Stencil, Montefiore Hospital, Pittsburgh, Pa., is to receive the award presented by the A.PH.A. for the best hospital pharmacy display during National Hospital Week, sponsored annually by the American Hospital Association.

The A.PH.A. Committee on Public Relations felt that two other displays merited *honorable mention*, that of *Lt. Comdr. J. J. Beretta*, Pharmacy Officer, U.S. Naval Hospital, San Diego, Calif., and *Lt. Comdr. E. W. Welch*, Chief, Pharmacy Service, U.S. Naval Hospital in Corona, Calif. This is the first time the Committee has made use of the *honorable mention* category in this competition.



Frank Stencil's display wins National Hospital Week Pharmacy Award, a plaque which will be presented at the annual meeting of the A.S.H.P. held in conjuction with the A.Ph.A. Convention week of April 28, 1957, in New York City.

INTERNATIONAL

Canada—The American Dental Association has announced that all five dental schools of Canada have gained accreditation in the U.S. This is the first time foreign dental schools have been placed on the list of accredited schools issued by the Association's Council on Dental Education. U.S. dental schools have been included in the Canadian Dental Association's list of recognized schools for some time.

Cuba—The Ninth General Assembly of the World Medical Association will hold its next assembly in Havana, Cuba, October 9–15, 1956.

Finland—The Permanent International Commission for Industrial Medicine held its 1956 congress at Helsinki July 1–6. A large number of physicians, engineers, chemists, educators, and others interested in industrial hygiene participated.

Germany—A world-wide congress of the International Federation of Catholic Pharmacists will be held September 5–9, 1956, in Freiburg.

Switzerland—The International Association for the History of Pharmacy will meet in Bern, September 6–9, 1956.

MANUFACTURERS

Abbott Laboratories has filed complaints of fair trade violations in the Maryland courts against two Silver Spring drug retailers—Peoples Drug Stores and Drug Fair—for issuing trading stamps.... Twenty-nine sons and daughters of Abbott employees begin college this fall on scholarships awarded by the Abbott Foundation....Abbott's Radioactive Pharmaceutical Division at Oak Ridge has a new Manager of Customer Relations, *J. Paul Mannin.*

Armour Laboratories has inaugurated air freight deliveries from Chicago to the Southwest. A coordinated system of air and overland transportation makes possible first or second morning delivery of all orders received from Arkansas, Louisiana, New Mexico, Oklahoma and Texas....*C. W. Tarbet* has been appointed Sales Director for Armour Laboratories.

Arner Co.—*Dr. Niels C. Klenshoj*, private formulae manufacturer, has been appointed to the New York State Legislative Committee for investigating the narcotics problem. The committee has been given a $50,000 appropriation to determine the effectiveness of existing narcotics laws and agencies, adequacy of present facilities, advisability of creating a central agency for narcotics control, and development of experimental programs.

Becton, Dickinson and Company offers a new, easy-to-use chart to help the pharmacist increase his sales of prescription accessories. Research shows that only 1,500 of the nation's pharmacies take advantage of such sales potential.

Bristol Laboratories has appointed *Thomas R. Callery* Director of the Special Products Division.

Capitol Laboratories, Inc., a new pharmaceutical corporation located in Boston, plans to offer initially a family of silicone preparations, first of which will be a protective lotion for babies. *Howard P. Smolar*, formerly with *E.R. Squibb & Sons*, has been named director of the new company.

Ciba, which first isolated and introduced the tranquilizing and hypotensive drug reserpine, has been granted a U.S. patent on the product, embracing crystalline reserpine, its salts and pharmaceutical preparations of the drug. The Swiss company and its affiliates now hold patents on reserpine in many countries throughout the world.

Hance Bros. & White Co. announce the appointment of *William H. Helfand*, formerly of the Economic Research Division of Sharp & Dohme, as Plant Manager.

Ingram Laboratories, Inc., one of San Francisco's oldest pharmaceutical manufacturers, has been reorganized as **Ingram Pharmaceutical Co.** *William P. Müller*, formerly associated with Cutter Laboratories, will be President of the new corporation.

For filling a million prescriptions: Frank Macek, Pres., Maryland Pharmaceutical Association (r.) presents Lederle awards to (l. to r.) T. Caldwell of Armstrong Pharmacy; G. A. Mouat and A. G. Ogrinz, recently appointed a Board of Pharmacy member, both of Burris and Kemp; H. L. Schrader of Schrader Pharmacy; W. E. Albrecht, Schulte's Drug Store, and O. C. Doub, Thomas and Thompson, Inc.

Lakeside Laboratories, Inc., announces completion of reciprocal marketing and research arrangements with Benger Laboratories, Ltd., of Cheshire, England. (See Prescription Information Service, p. 537, under "Iron-Dextran Complex.")

Lederle Laboratories—*James W. Skinner, Jr.*, has been appointed Manager of Government Sales....*Dr. Earl H. Dearborn*, formerly Professor of Pharmacology and Chairman of the Department at Boston University School of Medicine, has been made Head of Pharmacological Research at Lederle.

Lehn & Fink Products Corporation's Vice President, *Emil Klarmann*, received the honorary degree of Doctor of Science at the 135th commencement exercises of the Philadelphia College of Pharmacy and Science.

Eli Lilly and Company's growing operations in the antibiotics, chemical manufacturing, and glandular products fields have resulted in the appointment of *Truman D. Hoover* as Executive Director in charge of over-all supervision of these operations. Completion of a new plant at its Tippecanoe Laboratories in late 1957 will increase Lilly's chemical capacity by 50 per cent.

The S. E. Massengill Company announces the appointment of *Morris W. Pully* to the position of Director of Sales Training for the entire United States.

McKesson & Robbins, Inc., elected *Herman C. Nolen* as President, succeeding George Van Gorder, who will continue to serve as Chairman and Chief Executive Officer.

Merck & Co.—A new process for making ascorbic acid tablets 15% smaller without lowering vitamin C activity has been developed. The new Merck process, made possible by coated ascorbic acid, enables manufacturers to produce tablets of 500 mg. vitamin C potency in units weighing only 605 mg. each, according to *Dr. H. E. Silcox*, Technical Director. . . . *Dr. Max Tishler*, Vice President and Executive Director of the Sharp & Dohme Research Laboratories Division, has received the honorary degree of Doctor of Science from Tufts University.

William S. Merrell Company combined with the Midwest International Trade Development Center to entertain more than 100 interns and resident doctors from 41 countries on completion of their training in Cincinnati hospitals. The occasion is expected to become an annual event for the city's foreign physician-trainees.

Norwich Pharmacal Co.—Today's prescription is the biggest bargain in history, *Oren Bigelow*, a pharmacist of Sherburne, N.Y., told a group of women consumers visiting the Norwich Pharmacal Company's research laboratories. About 100 members of the Chenango County Chapter of the New York State Home Bureau Federation heard Mr. Bigelow and *Dr. George Rogers*, of the drug company's medical staff, discuss the extensive research that must take place before a new drug is marketed.

Parke, Davis & Company—*R. E. Hollerbach*, Personnel Research Director, will serve as a chairman at the American Management Association workshop seminar at Colgate University, Hamilton, N.Y., this summer. . . . *Orlando Castagnet* becomes General Manager for P-D's Mexican operations.

Rexall Drug Co.—*James A. Barnett*, Vice President of Lever Bros., has been named Vice President of Rexall, according to *Justin Dart*, President of Rexall.

Rowell Laboratories—*T. H. Rowell, Jr.*, who recently graduated from the College of Pharmacy, University of Minnesota, will now be associated with Rowell Laboratories as Executive Vice President.

Schering Corporation—The 30th anniversary of Schering's operations in Canada was marked June 4 by the dedication and opening of a modern plant and administration building in Montreal. . . . . *Edwin James Hoff, D.V.M.* has been appointed to the Veterinary Medicine Department staff. The Department is under the direction of *J. C. Siegrist, D.V.M.*

Smith, Kline & French Inc., wholesale subsidiary of Smith, Kline & French Laboratories, has appointed *J. Mahlon Buck, Jr.*, Vice President of Operations; *Bernard B. Klebanoff* was named Vice President of Trade Relations; *Howard E. Smith* became Vice President of Purchasing; *Samuel M. Wanamaker* was made Vice President and Credit Manager; and *Rodney D. Day, Jr.*, was appointed Secretary and Treasurer.

E. R. Squibb & Sons has named *Maxson A. Eddy* Director of Packaging.

Sterling Drug—*Frederick W. Tilston*, Vice President of Sterling Drug Mfg. Ltd., was among the 400-odd living holders of the Victoria Cross who attended the recent fortnight's celebration in London of the 100th anniversary of the famed V.C.

Thos. Leeming & Company's bronze medallion commemorates its 75th anniversary this year. Created by the noted sculptor, A. S. Hardin, the medal won the National Sculpture Society's top award in its class. (*See cut above.*)

F. J. Stokes Machine Company, Philadelphia, Pa., has changed its name to F. J. Stokes Corporation effective July 1, according to *Francis Dougherty*, Stokes' President. . . . The company announces the purchase from *Merck Sharp & Dohme* of all patents and patents pending relating to the manufacture of press-coated tablets and to the design of press-coating machinery. The press-coating procedure makes possible many new interesting pharmaceutical combinations which must be compounded in the absence of moisture or must withstand chemical interaction.

Travenol Laboratories, pharmaceutical products division of Baxter Laboratories, has developed a device for adding supplemental medication to bulk parenteral solutions that will permit direct, aseptic transfer of medication without the use of needle and syringe.

Upjohn Company—Albamycin (see New Prescription Products, page 545), still being in short supply overseas, has been offered without cost to physicians abroad for critically ill patients. Amateur radio operators have been picking up urgent appeals from France for the potent new antibiotic.

Walker Laboratories of Mount Vernon, N.Y., has purchased Norvel Laboratories of Tuckahoe. Under Walker direction Norvel will undertake a wider program of new product development.

Warner-Chilcott—A new kind of college scholarship has been announced by Warner-Chilcott. Four $2,000 awards will be made annually to high school graduates for 4 years of study in one or more of the natural sciences. The first 4 winners will be selected this year from among graduates of New Jersey high schools by the Scholarship Sub-Committee of the North Jersey section of the American Chemical Society.

Warner-Lambert Pharmaceutical Company has opened a new $1,500,000 manufacturing plant in Eastleigh, England.

White Laboratories—*Dr. Fred M. Tomera*, a general practitioner from the host city of Chicago, won the Cadillac that is presented by White Laboratories each year at the American Medical Association's annual convention. . . . *F. M. Schwemmer*, former advertising agency director, joins White in the newly created post of Vice President in Charge of Marketing. *Lee B. Pinkerton* becomes Vice President in Charge of Sales, and *Dr. Hubert L. Patterson*, Vice President in Charge of Advertising.

Merck Sharp & Dohme is the new name for the Sharp & Dohme Division of Merck & Co., Inc. The change in name and trademark is announced in the MSD advertisement appearing on page 499.

LOCAL & STUDENT BRANCHES

LOCAL BRANCHES

City of Washington Branch President *George B. Hutchinson* gave an interesting talk on "A Pharmacist Views Nuclear Energy" at the June meeting. Charts and graphs were distributed to those present to assist them in following the address.

Northern California Branch and the Northern California Society of Hospital Pharmacists held a joint meeting at the University of California Hospital on June 12. *Dr. Peter Forsham*, Chairman of the Metabolic Laboratories at the University of California Medical Center, was guest speaker. His address dealt with "Newer Hormones and Their Uses." *Claude Busick*, immediate past President of the American Society of Hospital Pharmacists, urged all members to contribute to the A.PH.A. Building Fund.

Michigan Branch held its annual installation of officers banquet on May 28 with *Dean Stephen Wilson* of Wayne University College of Pharmacy serving as toastmaster. John A. MacCartney, A.PH.A President, installed the following members: *Henry Maicki*, President; *Mary Kalinski*, Secretary; and *Lillian Russell*, Treasurer. *Mrs. Jane Rogan*, retiring Secretary of the Branch, was presented a corsage and a desk set in appreciation of the work she has done for the Branch. President Maicki is planning a very active program for the coming year.

Northwestern Branch, at its May meeting, heard an address on the subject "History and Treatment of Allergies" by *Dr. J. Blumenthal*, Chief of the Allergy Department of the University of Minnesota.

The **Philadelphia Branch** is currently celebrating its 50th anniversary. At the May meeting two of its past Presidents, *Dr. E. Fullerton Cook* and *Dr. Adley B. Nichols*, were honored. Guest speaker for the occasion was *Dr. Percy L. Julian*, President of Julian Laboratories, who spoke on "Some Intriguing Potentials in the Recent Steroid Advances." *William T. Fink* has been elected President of the Branch. Other new officers are: *John A. Lynch*, Vice President; *Earl A. Kimes*, Secretary, and *Walter F. Charnicki*, Treasurer.

Before the **Puget Sound Branch** at its March meeting, *Dr. Ted Loomis*, University of Washington pathologist, discussed "Toxicology." In his talk Dr. Loomis listed the most common poisons involved in accidental poisoning of children and offered a plan for the pharmacist to follow in determining the manner of handling an emergency poison case.... The June meeting featured a report on the Detroit Convention presented by *Dr. Elmer Plein* of the University of Washington College of Pharmacy. Discussion also centered on the use of non-professional advertising by pharmacists in local newspapers.

Southeast Texas Branch—The June meeting of the Branch was addressed by *Lucian Vestal*, Research Investigator for Rotan, Mosle and Co., members of the New York Stock Exchange, whose subject was "Stocks and Bonds."

STUDENT BRANCHES

Duquesne University Student Branch officers for 1956–57 are: *Daniel M. Philbin*, President; *Robert M. Aber*, Vice President; and *Mary. A. Wolf*, Secretary-Treasurer. The faculty advisor is *Dr. Robert G. Shaheen.*

St. Louis College of Pharmacy and Allied Sciences Student Branch has elected the following officers to serve during 1956–57: *Chris Winkelmann*, President; *John Canham*, Vice President; *William Friedrichs*, Secretary; and *Peggy Parker*, Treasurer. *Dr. Frank L. Mercer* is faculty advisor.

University of Nebraska Student Branch sponsored the Annual College of Pharmacy Banquet on May 26. During the course of the evening Rho Chi awards were presented to *Jerry Graves* and *Jack Wier;* the latter was also awarded the Lehn and Fink medal; Miss *Vija Upitis* received the Kappa Epsilon award; *Merck* awards went to *Pearl Bremer*, Secretary of the Student Branch, and *Ed Mueksch*, who also won the *Bristol Laboratories* award.

University of North Carolina Student Branch officers for 1956–57 are: *Byron T. Huckaby*, President; *Pete D. Freeman*, Vice President; *Loretta Barefoot*, Secretary; and *Ernest L. Carraway, Jr.*, Treasurer. *Dr. John Andrako* serves as faculty advisor.

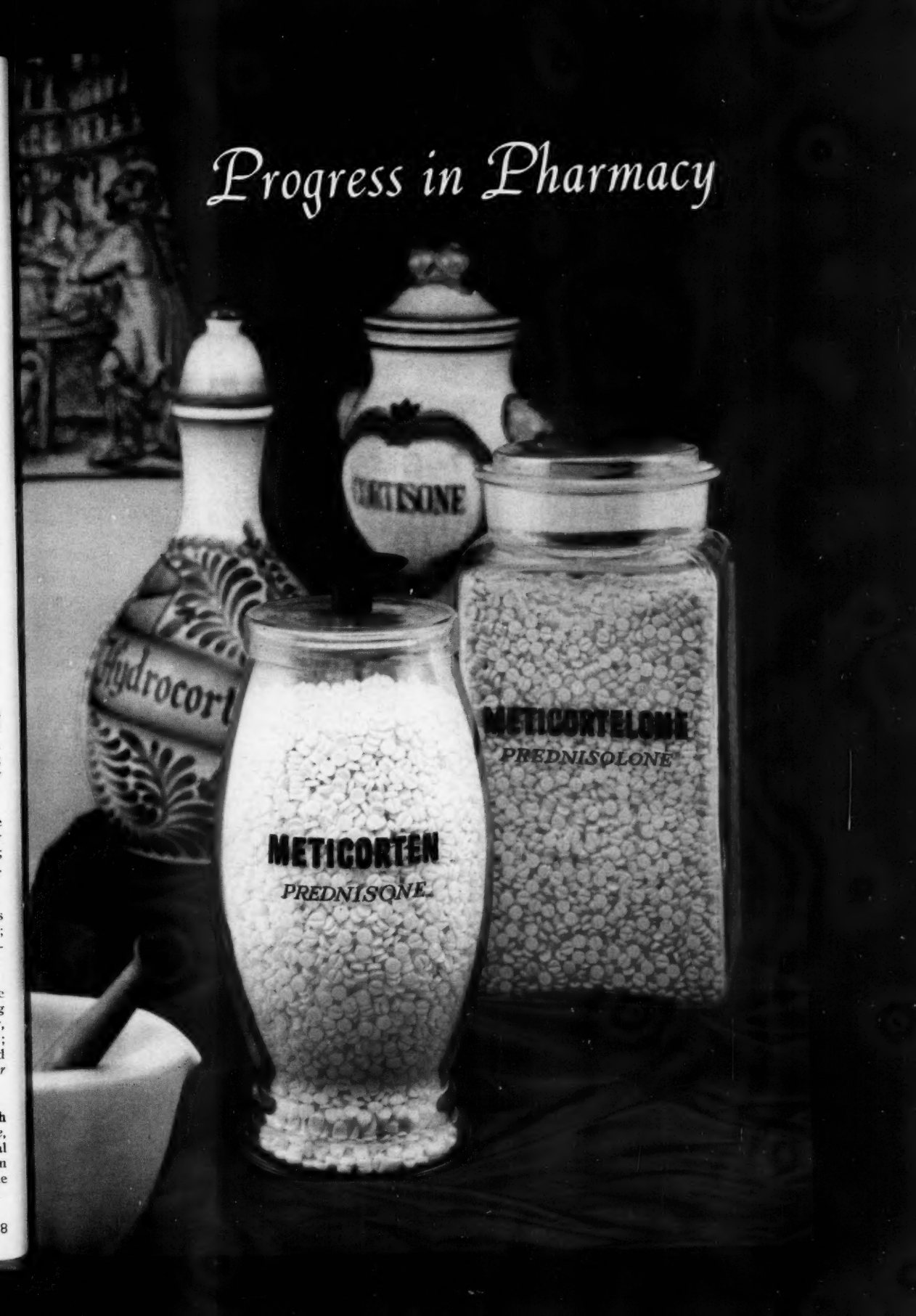
University of Buffalo Student Branch announces the following officers to serve during 1956–57: *Alton K. Delan*, President; *Richard H. Polakoff*, Vice President; *Angela Bongiovanni*, Secretary; and *Julie M. Biehle*, Treasurer. Faculty advisor is *Dr. Clifton F. Lord.*

University of Tennessee Student Branch will have Allen Hawkins as President for 1956–57. Other officers are: *William B. Garrett*, Vice President; *Peggy Fuson*, Secretary; and *Billy Brooks*, Treasurer. *Dr. A. H. Musick* serves as faculty advisor.

University of Toledo Student Branch Officers for 1956–57 will be: *James Guemenden*, President; *Alan Baer*, Vice President; *Joan E. Parrott*, Secretary, and *Clayton Umbles*, Treasurer.

Wayne University Student Branch reports the following officers have been elected to serve during 1956–57: *David Cotton*, President; *Richard Krueger*, Vice President; *Judy Stevens*, Recording Secretary; *Wilfred Jamieson*, Corresponding Secretary; and *Edwin Frost*, Treasurer. *Dr. Melvin F. W. Dunker* is faculty advisor.

The **West Virginia University Student Branch** meeting of May 14 was addressed by *Paul F. Price, D.D.S.*, of Morgantown, on the subject "Dental Health." The use of antibiotics and sedatives in an improved dental health program were among the salient points brought out in the address.


Progress in Pharmacy
METICORTEN
PREDNISONE
METICORTELONE
PREDNISOLONE

in the forefront

superseding cortisone and hydrocortisone

METICORTEN

and

METICORTELONE

the original Meti-steroids discovered and introduced by

Schering

The discovery and introduction of the "Meti-steroids" by Schering was one of the truly important therapeutic developments of the past year. Today, METICORTEN and METICORTELONE dominate the corticosteroid field, relegating cortisone and hydrocortisone to the background.

Once again Schering research has opened a new era in specific therapeutics, which means new benefits in applications of steroid therapy. The Meti-steroids are now appearing in many new dosage forms which will supersede older, less effective products.

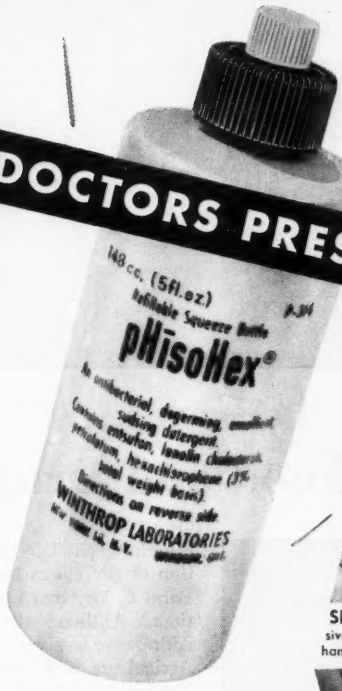
This presages still more significant contributions by Schering in the future to specific control of disease.

for intra-articular therapy	METICORTELONE Acetate Aqueous Suspension
for topical skin therapy	METI-DERM Cream METI-DERM Ointment with Neomycin
for topical eye therapy	METIMYD Ophthalmic Suspension METIMYD Ointment with Neomycin
for nonspecific rheumatic disorders	SIGMAGEN Tablets

METICORTEN,* brand of prednisone; METICORTELONE,® brand of prednisolone; METI-DERM,* brand of prednisolone topical; METIMYD,* brand of prednisolone acetate and sulfacetamide sodium; and SIGMAGEN,* brand of corticoid-analgesic compound. MC-J-2066 *T.M.

NOW!

DOCTORS PRESCRIBE



for "hospital clean" skin in home patient care

ORIGINATING as a dramatically effective hospital surgery "scrub up" agent, pHisoHex, after years of heavy ethical promotion, has broadened its field to include the vast home use market.

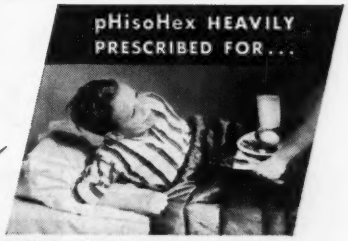
A creamy, white emulsion, pHisoHex combines the nonalkaline detergent, pHisoderm with a full 3% of the powerful bactericide, hexachlorophene. pHisoHex degerms the skin and scalp more effectively than soap and forms an effective antiseptic "shield" that remains on the skin *even after rinsing.*

Intensive professional advertising, detailing and sampling continue to build increased interest and acceptance for pHisoHex.

Demand for pHisoHex is on the rise

ORDER FULL STOCKS TODAY!

pHisoHex, trademark reg. U. S. Pat. Off.



SICK ROOM USE: Regular and exclusive use reduces to a minimum the danger of handborne infection.

BATHING INFANTS: Inhibits growth of diaper rash bacteria. Nonirritating. Safety thoroughly proved through extensive clinical tests.

SKIN INFECTIONS: Brings skin a detergent with pH similar to skin. Helps to preserve skin's acid mantle, so guards against irritants and pathogens.

pHisoHex®

Winthrop LABORATORIES
1450 Broadway, New York 18, N. Y.
PHARMACEUTICALS IN DAILY DEMAND
ETHICALLY ADVERTISED AND DETAILED

Fiftieth Anniversary of the Federal Food and Drugs Act

Dr. Harvey W. Wiley, father of the national pure food and drug laws, in whose honor the commemorative stamp shown on our cover page was issued.

AN EXPANDING, vigorous food and drug industry on June 27 commemorated the 50th Anniversary of the Federal Food and Drugs Act and the Meat Inspection Act, both of which were signed by President Theodore Roosevelt on June 30, 1906. These and subsequent Acts protect the citizens of the United States from toxic foods, drugs, and cosmetics, and have indirectly aided in increasing the life expectancy of Americans some 20 years during the past half century.

The basic standards of purity, potency, and identity for drugs, as found in the *National Formulary*, the *Pharmacopoeia of the United States*, and the *Homeopathic Pharmacopoeia of the United States*, were given legal status under the food and drug laws passed in 1906.

Ceremonies commemorating the occasion, almost ritualistic in their beauty and content, included morning and afternoon public sessions in the United States Departmental Auditorium in Washington, D.C., a luncheon at the Willard Hotel, and a banquet (see photo above) at the Mayflower Hotel in the evening.

At the morning session, the Hon. Bradshaw Mintener, Assistant Secretary of Health, Education, and Welfare, presided. Following the invocation by the Rt. Rev. Angus Dun, Bishop of the Episcopal Diocese of Washington, presentation of the colors by the United States Marine Band Color Guard, and the playing of the National Anthem, the principal commemorative address was given by Assistant Secretary of Agriculture E. L. Peterson for the Hon. Ezra T. Benson, Secretary of Agriculture.

Commemorative Stamp

A commemorative stamp in honor of Dr. Harvey Washington Wiley, father of the national Pure Food and Drug Laws, was announced by Albert J. Robertson, Assistant Postmaster General for Finance of the United States, who, speaking for the Hon. Arthur E. Summerfield, Postmaster General, noted:

> "The food, drug, meat, and cosmetic companies, to which these laws apply, have gone far beyond mere compliance. They cooperated in drafting the laws. They brought their factories and products into line with this legislation. And to a very great extent they police themselves. . . . The partnership between private industry and government is a shining example of what we can accomplish for the good of all of us under our free enterprise system."

The stamp was accepted for the American people by the Hon. Marion B. Folsom, Secretary of Health, Education, and Welfare. The cover of THIS JOURNAL carries a facsimile of the commemorative stamp, which is being used by every pharmaceutical wholesaler, retailer, and manufacturing firm, every pharmaceutical educator, every hospital pharmacist, and every other type of pharmaceutical practitioner in this country in some manner this year. It was estimated that this stamp had the largest first day sale of any special stamp issued by the U.S. Post Office.

***DINNER SESSION** of the national meeting on June 27, 1956, in the Grand Ballroom of the Mayflower Hotel in Washington, D.C., to commemorate the 50th Anniversary of our national Pure Food, Drug, Cosmetic, and Meat Inspection Laws. The dignitaries who participated in the ceremonies described below are seated at the head table. Several thousand persons from the United States and Canada attended the several sessions and the banquet.*

Dr. Wiley (see photograph), whose name is being heard so very frequently during professional meetings this year, is revered as one of the all-time great figures in the history of American pharmacy. As founder of the Food and Drug Administration, which is responsible for the purity and potency of products used as food or medication, he established ideals of deepest significance to every citizen in this country. As the Hon. M. B. Folsom said in his address at the 50th Anniversary banquet:

> "This meeting has been more than merely a celebration of a historic event. It has been a re-dedication to an ideal that has profound significance to every American and, in fact, to people the world over. This is the ideal of promoting and maintaining the highest degree of purity and safety of those articles which sustain life and health—our food and our drugs."

Commemorative Awards

The luncheon was highlighted by the presentation of commemorative statements and awards. Following the invocation by the Rt. Rev. Monsignor Philip M. Hannan, Chancellor of the Catholic Archdiocese of Washington, and introductory remarks by the Presiding Officer, Eugene H. Holeman, Chairman, 50th Anniversary Committee of the Association of Food and Drug Officials of the United States, commemorative statements were submitted by John L. Harvey, Deputy Commissioner of Food and Drugs; Dr. A. R. Miller, Chief of the Meat Inspection Branch; James M. Doughty, Jr., President, Association of Food and Drug Officials; and K. D. Jacob, President, Association of Official Agricultural Chemists.

Commemorative awards to the Food and Drug Administration and to present and past living Commissioners of Food and Drugs (Dr. George P. Larrick, Walter G. Campbell, Dr. Paul B. Dunbar, and Charles W. Crawford) were presented by Dr. Howard A. Prentice, Co-ordinator for Industry of the 50th Anniversary Committee of the Association of Food and Drug Officials of the United States. The award to the FDA was accepted by the Hon. Bradshaw Mintener.

Commemorative awards to the Meat Inspection Branch, Department of Agriculture, and to present and past living Chiefs of the Branch (Dr. A. R. Miller, Dr. Edward C. Joss, and Dr. George E. Totten) were presented by Wesley Hardenbergh, President, American Meat Institute. The award to the MIB was accepted by the Hon. Ervin L. Peterson, Assistant Secretary of Agriculture.

Mrs. Harvey W. Wiley, widow of the distinguished crusader, responded in her usual charming and capable fashion after receiving a commemorative award from Eugene H. Holeman, Chairman, 50th Anniversary Committee.

(Continued on page 534)

Past and Present Status of PHARMACISTS IN THE ARMY

★ ★ ★ ★ ★

PROFESSIONAL services have been rendered by pharmacists in the Army since the American Revolution, when the Continental Congress in 1775 established an army hospital with an apothecary as one of the officers and in 1776 created the officer known as "druggist" who was to "receive and deliver all medicines, instruments, and shop furniture of the United States." In 1777 the Army Medical Department was reorganized into four districts with "one Apothecary General for each district, whose duty it shall be to receive, prepare, and deliver medicines and other articles of his department to the hospitals and Army as shall be ordered by the Director General."

Early Struggles for Status

The status of pharmacists in the Army deteriorated, however, and was at a low ebb during the Civil War. The AMERICAN PHARMACEUTICAL ASSOCIATION, recognizing the situation, appointed a "Committee on Status of Pharmacists in the Service of the United States," that later became the "Committee on Status of Pharmacists in Government Service" which is still active today.

During the Spanish-American War this committee actively endeavored to obtain commissions for pharmacists in the National Guard and in 1900 succeeded in having New York State pass an act assigning pharmacists to each regiment in the National Guard with the rank of lieutenant. But this law was repealed the next year.

During the period from 1901 until World War I, the Army routinely trained personnel to dispense drugs and provided noncommissioned grades for such personnel. The actual pharmaceutical service in the Army was provided under the direction of medical officers.

During World War I, the A.PH.A. Committee on Status of Pharmacists in Government Service again became active, and a bill providing for the organization of a Pharmacy Corps in the Medical Department of the Army was introduced into the House of Representatives. Unfortunately, no action was taken by the House, and during World War I only a few pharmacists were commissioned in the Sanitary Corps.

Finally, in 1920, the Army organized the Medical Administrative Corps, which included commissioned personnel with backgrounds in the professions related to medicine and provided experienced medical supply and administrative officers, including pharmacists.

Further attempts were made during World War II to organize a separate Pharmacy Corps, and a bill introduced by Congressman Carl Durham of North Carolina in 1942 actually became law on July 12, 1943, but a Pharmacy Corps was never completely organized because the Medical Department of the Army was not fully in sympathy with the idea.

In 1947 considerable progress was made by the establishment of a Medical Service Corps in both the Army and the Navy. The first Chief of the Medical Service Corps in the Army was a pharmacist, and the present Chief is also a pharmacist.

The Medical Service Corps is presently divided into four major sections: Pharmacy Supply and Administration Section, Sanitary Engineering Section, Optometry Section, and Medical Allied Sciences Section, with current percentage strengths of approximately 85, 2, 2, and 11, respectively.

Progress in 1956

The Committee on Status of Pharmacists in Government Service has continued to be active. At the last A.PH.A. convention in Detroit, a six-point resolution was passed by the House of Delegates, reading as follows:

> *Resolved*, That the AMERICAN PHARMACEUTICAL ASSOCIATION extend every effort toward the accomplishment of:
>
> 1. Providing flag rank (General or Admiral) for the Chiefs of the Medical Service Corps of the respective armed services and the Director of Pharmaceutical Activities of the Public Health Service.
> 2. Providing for supervision of all pharmacy services in the armed forces and the Public Health Service by commissioned pharmacists.
> 3. Providing, to the greatest extent possible, for the elimination of non-pharmacists from connection with duties which are normally performed by pharmacists in civilian life or improvement in the assignment of military and other rank to pharmacists in the draft age who may enlist or be drafted for military duty.

4. Discontinuance in all branches of the armed forces of programs designed to train pharmacy "technicians" or "mates."
5. Transfer of trained pharmacy personnel from any branch of the Service in which such personnel might be in excess of the need and demand to any of the other branches needing or requiring additional pharmacists.
6. Securing equal status and benefits for pharmacists in legislation which has been proposed to the Congress for the purpose of providing career incentives to medical and dental officers and nurses.

The Secretary of the A.PH.A. transmitted this resolution personally to Surgeon General Silas B. Hays of the United States Army. General Hays gave favorable consideration to four of the six points covered in the resolution and transmitted to Dr. Fischelis a letter in reply, from which the following pertinent abstracts are made:

> "The question of providing flag rank for the Chiefs of the Medical Service Corps has been under consideration for a considerable period. There are many arguments *pro* and *con*. This Corps is a young Corps and its stature is rapidly increasing. I personally feel that this will transpire within a relatively few years. I also feel, however, that when this does occur it should be simultaneous in all three armed services.
>
> "The question of providing commissioned pharmacists for all pharmacy service in the armed forces is under process of implementation in the Army. I am informed that at the present time approximately 36 Army pharmacies are supervised by commissioned pharmacists. The policy of the Army is that pharmacies in all hospitals of 100 beds or more and dispensaries which have a large prescription business will be staffed with commissioned pharmacists. I am taking steps to see that this policy is implemented. I would like to point out, however, that in practically all instances this means the movement of one or more individuals on a permanent change of station. It will take at least a year before the majority of these pharmacies will have commissioned officers in these jobs.
>
> "The next question is the elimination of non-pharmacists from our Army pharmacies. In the Army we discontinued the training of non-pharmacist enlisted personnel to be pharmacy technicians. We do not plan to reestablish such training. There are, however, in many of our Army pharmacies, career enlisted men who have received this training in the past and are doing excellent work both in their technical field and also as noncommissioned officers. It would be a serious blow to the morale of all of our enlisted personnel were we to eliminate these good men from jobs and skills which they have worked so hard to acquire. In other words, we have cut off the input but we will continue for a long time to have individuals in our pharmacies who are not graduates of colleges of pharmacy. I have instructed my staff to investigate the possibility of establishing a short course, probably of one week's duration, to train newly enlisted graduate pharmacists in military pharmacy so that they can go to work in our pharmacies with a minimum of delay following entry into the service. I have also instructed my staff to investigate the possibility of establishing another short course, probably of four weeks' duration, to train other newly enlisted graduate pharmacists to be medical laboratory specialists.
>
> "The Army discontinued training programs designed to train pharmacist technicians in 1953."

Copies of the communications to and from the Surgeon General were transmitted by Dr. Fischelis to the Committee on Status of Pharmacists in Government Service, which since 1941 has consisted of three representatives from each of the following organizations: the AMERICAN PHARMACEUTICAL ASSOCIATION, National Association of Retail Druggists, American Association of Colleges of Pharmacy, and the National Association of Boards of Pharmacy.

The A.PH.A. members of the committee recently appointed by President John A. MacCartney are F. Royce Franzoni of Washington, D.C., E. R. Serles of Chicago, Ill., and Milton W. Skolaut of Bethesda, Md.

Mr. Franzoni has recently been elected Chairman of the Committee by a vote of the members of the Committee representing the four constituent organizations. He succeeds Major Arthur Einbeck, who asked to be relieved of the chairmanship but remains as a member of the Committee representing the N.A.R.D.

Army Commissions Available to Pharmacists

It is interesting to note that direct commissions with concurrent call to active duty in the grades of lieutenant and captain in the Army Medical Service Corps are now open to graduates of approved colleges of pharmacy, according to an announcement made on July 6 by Colonel Bernard Aabel, Chief of the Medical Service Corps, who declared:

> "Although these commissions will be made in the U.S. Army Reserve, we are most interested in the young pharmacist who has an eye to the future and wishes to make the Army a career."

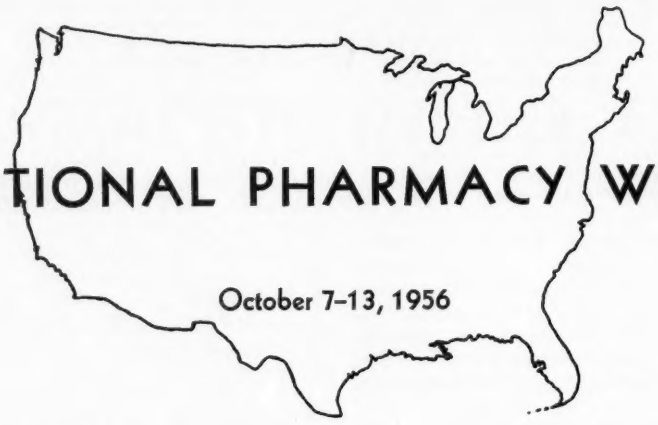
He indicated that the minimum period of active duty was for two years, but at the expiration of 18 months each officer could make application for the Regular Army.

Selected applicants will not only be assigned to pharmacies but will have an additional opportunity for assignments in medical supply, administration, or field medical service.

Interested pharmacists should get in touch with the personnel procurement officer assigned to the nearest military district headquarters or Army area headquarters.

The commissions will be granted under the provisions of Department of the Army Circular 135-17, dated March 30, 1956.

An Invitation to The Pharmacists of America To Participate In The 30th Formal Observance of



SPONSORED BY THE AMERICAN PHARMACEUTICAL ASSOCIATION, the 1956 observance of National Pharmacy Week will give pharmacists across the nation an opportunity to work together in a program designed to call public attention to the slogan "Your Pharmacist Works for Better Community Health."

Early in September some 50,000 pharmacies throughout the nation will receive an announcement of the observance outlining the rules of the annual display and exhibit contest in the four categories of competition—retail pharmacy, college, public exhibit, and hospitals and clinics. (See page 512 for complete list of rules.) The announcement will be accompanied by a window streamer which must be a part of all displays entered in the competition, and also a participation order form listing various public relations aids that are available to pharmacists. (See page 511 for order form.)

Competition for display contest prizes is limited to *members* of the AMERICAN PHARMACEUTICAL ASSOCIATION; however, non-members are also invited to install displays even though they may not decide to enter the contest. Fifteen national awards, including cash prizes, plaques, and certificates, will be presented at the annual convention of the A.PH.A. to be held in New York City next April. In addition, a certificate will be awarded to each state retail pharmacy display winner at an appropriate time and place.

The A.PH.A. Committee on Public Relations also invites individual pharmacists, as well as organized groups, to take an active role in National Pharmacy Week through participation in the many public relations media open to practicing pharmacists. A variety of publicity aids covering all types of media will be made available and since the promotion of the observance benefits Pharmacy as a whole, the aids may be obtained by *non-members* as well as members.

The public relations aids include addresses, radio and television scripts and spot announcements, newspaper editorials, suggested proclamations for governors and mayors, and an advertising mat. These items may be ordered individually or in Kit form. Orders should be submitted on the coupon at the lower portion of page 511. It is suggested that orders be placed at any early date so that materials will arrive in ample time to make the necessary contacts with program chairmen of service clubs, program directors of radio and television stations, and the editors of newspapers.

The 1956 publicity aids include revised basic materials of tested interest and value supplemented by a number of new items. Among the new materials are public addresses, newspaper editorials, radio spot announcements, and a newspaper ad mat.

Each participation item bears a cover page giving full information on how to use this guidance material, which includes notes on people to see, when to start, and other information. Also included are sample press releases which are to be sent to local newspapers.

While the participation material for use by pharmacists has been essentially designed for the observance of National Pharmacy Week, much of the material can be used in a year-round public relations program.

The Committee on Public Relations, which is composed of J. Warren Lansdowne, Chairman; George F. Archambault, George A. Bender, John A. Lynch, Robert P. Fischelis, and Charles C. Rabe, Secretary to the Committee, asks your full cooperation in making the 1956 observance of National Pharmacy Week an outstanding success. ▶ ▶ ▶

Participation Order Form

Pharmacists are invited to take part in the observance of National Pharmacy Week, October 7–13, through the active use of the aids that have been prepared for them. The items listed below, except the A.PH.A. Code of Ethics* and the advertising mat,** are available at 10¢ each. The minimum order is 30¢. A collection of the first fifteen (15) items will be supplied in kit form for $1.00. Use coupon at bottom of page for ordering.

These are 10 to 15 minutes in length and suitable for groups indicated.

Public Addresses *Some may be adapted to radio, television, and newspaper use.*

1. Pharmacy—An Exacting Profession (*all groups*)
2. Evolution of the Drugstore (*historical society, service club, library group*)
3. Behind the Scenes in Your Corner Pharmacy (*service club, church group, high school*)
4. Pharmacy—A Modern Career in the Health Field (*high school or other youth groups*)
5. The Pharmacist's Show Globe (*all groups*)
6. Drugs of Biblical Times (*church group, women's club*)

Radio and Television Material

7. Spot Announcements (*a variety of 15-, 30-, and 45-second radio announcements*)
8. Trends in Pharmacy and The Practice of Pharmacy (*5-minute television interviews*)
9. A Visit With Your Pharmacist (*a 5-minute radio or television interview*)
10. The Cost of Prescriptions (*a 10-minute radio or television interview*)
11. New Drugs in the Pharmacy (*a 15-minute radio or television interview; 2 pharmacists*)
12. Your Pharmacist—In Words and Music (*a 15- to 30-minute radio script; announcer only*)

Newspaper and Miscellaneous Material

13. Suggested Editorials for Newspaper Use
14. Suggested Proclamations for Use by Governors and Mayors
15. National Pharmacy Week Display Suggestions, Window Strip, and Contest Rules

Items Not Included in Kit

**16. Newspaper Mat (*National Pharmacy Week; 2 columns*), 30¢
17. The Pharmacist—Then and Now (*an address for service club, church group, high school*)
18. The Hospital Pharmacist—Unseen But Essential (*an address for all groups*)
19. The Search for New Drugs (*a 15-minute radio or television interview*)
20. The Prescription That Shook the World (*a 15-minute radio drama for cast of 7*)

*21. A.PH.A. Code of Ethics. 10″ by 16″, in 3 colors, on heavy stock for framing, $1.00 postpaid

*22. A.PH.A. Code of Ethics. 12″ by 16″, in 3 colors, on laminated board, "easeled" for counter display, "ringed" for hanging, $2.50 postpaid

*23. A.PH.A. Code of Ethics. Leaflet, single copy free; 2 to 500 copies 1¢ each; 500 to 1,000 copies 10% discount; over 1,000 copies 15% discount

DETACH AND MAIL

I enclose $_____ for the items encircled below. (Remittance must accompany order; postage stamps are acceptable.)

1 2 3 4 5 6 7 8 9

10 11 12 13 14 15 16 17

18 19 20 21 22 23 Kit

Name_____

Street_____

City_____

Mail to: **Committee on Public Relations**
AMERICAN PHARMACEUTICAL ASSOCIATION
2215 Constitution Avenue, N.W.,
Washington 7, D.C.

See Next Page for Contest Rules ▶ ▶ ▶

RULES FOR NATIONAL PHARMACY WEEK DISPLAY CONTEST

General

1. Competition is limited to members of the AMERICAN PHARMACEUTICAL ASSOCIATION. In instances where a photograph is entered in the name of a retail pharmacy rather than by an individual, a member of the AMERICAN PHARMACEUTICAL ASSOCIATION must be associated with the firm, either as an owner or as an employee, and must have had a part in the planning of the display.
2. Each display must exhibit the window strip bearing "National Pharmacy Week, October 7–13, 1956," which the AMERICAN PHARMACEUTICAL ASSOCIATION will supply.
3. Displays will be judged on the basis of:
   a. Value and effectiveness of the message to the public
   b. Originality
   c. Professional character, arrangement, and details
   d. Conformity to theme—"Your Pharmacist Works for Better Community Health"
4. Displays must be entirely professional in their concept. Any emphasis on commercial implications must be avoided.
5. Photographs submitted must be 8 by 10-inch glossy prints.
6. Pharmacy Week displays that have been entered in former years are ineligible.

Retail Pharmacies

1. General Rules 1 to 6 inclusive apply to this competition, which is limited to displays in retail pharmacies.
2. Photographs of displays must be submitted to the secretaries of the respective state pharmaceutical associations on or before November 15, 1956, labeled on the back as entries in the Retail Pharmacy Competition.
3. Each state pharmaceutical association should appoint a judging committee before November 15, 1956, to select the best display within the state. (Some states have provided a state prize for the best display and then entered the winner of this contest as their representative in the national competition.) A photograph of that display shall be mailed to the AMERICAN PHARMACEUTICAL ASSOCIATION, 2215 Constitution Avenue, N.W., Washington 7, D.C., not later than December 15, 1956. Entries mailed after that date will not be accepted in the national competition.
4. Only the winner from each state may be entered in the national competition. Each state winner will receive an appropriate certificate from the AMERICAN PHARMACEUTICAL ASSOCIATION.
5. As soon as possible after December 15, 1956, a national committee of judges will select the best six displays from the states. The winning displays will be awarded the following:
   1. $200 and plaque or other trophy
   2. $100 and plaque or other trophy
   3. $50 and plaque or other trophy
   4. }
   5. } Certificates of merit
   6. }

Public Exhibits

1. General Rules 1 to 6 inclusive apply to this competition.
2. Displays or exhibits in the Public Exhibit Competition must be installed in a public place other than a retail pharmacy, pharmacy college, or hospital, such as a bank, railroad station, air terminal, government building, etc. One entry may be submitted by any pharmacist or group of pharmacists, including hospital and retail pharmacists, state and local associations, schools of pharmacy, and local branches of the AMERICAN PHARMACEUTICAL ASSOCIATION.
3. Photographs of displays shall be mailed to the AMERICAN PHARMACEUTICAL ASSOCIATION, 2215 Constitution Avenue, N.W., Washington 7, D.C., on or before December 15, 1956. Entries mailed after that date will not be accepted in the competition.
4. As soon as possible after December 15, 1956, a national committee of judges will select the best three public exhibit entries. The best display in this group will receive the AMERICAN PHARMACEUTICAL ASSOCIATION Award, which shall be a suitable trophy, and the others will receive certificates of merit.

Pharmacy Colleges

1. General Rules 1 to 6 inclusive apply to the Pharmacy College Competition, which is limited to displays or exhibits planned and installed by pharmacy students at their college or university.
2. Only one photograph from each college may be entered.
3. Photographs of displays shall be mailed to the AMERICAN PHARMACEUTICAL ASSOCIATION, 2215 Constitution Avenue, N.W., Washington 7, D.C., on or before December 15, 1956. Entries mailed after that date will not be accepted in the competition.
4. As soon as possible after December 15, 1956, a national committee of judges will select the best three displays from the colleges. The best display in this group will receive the AMERICAN PHARMACEUTICAL ASSOCIATION Award, which shall be a suitable trophy, and the others will receive certificates of merit.

Hospitals and Clinics

1. General Rules 1 to 6 inclusive apply to the Hospitals and Clinics Competition, which is limited to displays or exhibits planned and installed in hospital or clinic lobbies or other hospital or clinic areas open to the general public.
2. The entry must be submitted in the name of the hospital or clinic by the hospital administrator and chief pharmacist jointly.
3. Only one photograph from each hospital or clinic may be entered.
4. Photographs of displays must be mailed to the AMERICAN PHARMACEUTICAL ASSOCIATION, 2215 Constitution Avenue, N.W., Washington 7, D.C., on or before December 15, 1956. Entries mailed after that date will not be accepted in the competition.
5. As soon as possible after December 15, 1956, a national committee of judges will meet to select the best three exhibits in this group. The best exhibit will receive a plaque suitable for hanging in a prominent place in the hospital or clinic, and the other two will receive certificates of merit.

Summary of Legislation .....Affecting Pharmacy

During the 224 days extending over the two year period that the 84th Congress was in session, it passed and sent to the President for signature or veto a record total of 2,878 bills. All were scanned for possible health implications by the A.PH.A Committee on Legislation. On July 27, the date that Congress adjourned, many bills affecting pharmacy had been passed by the House and Senate and a number had been signed into law by the President.

The following bills which were introduced in Congress on the dates shown are the important ones that have been followed closely by the A.PH.A. Committee on Legislation to determine their effects on pharmacy, their health implications, and what action if any the A.PH.A. should take. A few were not acted upon by Congress and as THIS JOURNAL goes to press (Aug. 3, 1956), a few of those which have been passed by both House and Senate have not been signed by the President.

Aged

H.R. 11794—Frank Thompson, Jr. (D, N.J.)—June 14, 1956.

"Services to Older Persons Act" provides for the establishment of the Bureau of Older Persons within the Department of Health, Education, and Welfare; authorizes Federal grants to assist in the development and operation of studies and projects to help older persons; and for other purposes.

H.R. 12154—Harrison Williams, Jr. (D, N J.)—July 9, 1956.

"Senior Citizens' Opportunity and Security Act" authorizes Federal grants to assist in the development and operation of studies and projects to help older persons; and for other purposes

H.R. 12260—Daniel J. Flood (D, Pa.)—July 16, 1956.

"Senior Citizens' Opportunity and Security Act," similar to H.R. 12154.

No action was taken on any of these bills.

Antitrust

S. 11—Estes Kefauver (D, Tenn.)—Jan. 6, 1955.

Strengthens the Robinson-Patman Act provisions relating to the burden of rebutting *prima facie* cases of unlawful price discriminations by providing that unless the effect of the discrimination may be substantially to lessen competition or tend to create a monopoly in any line of commerce it shall be a complete defense for a seller to show that his lower price of the furnishing of services or facilities to any purchaser or purchasers was made in good faith to meet an equally low price of a competitor or the services or facilities furnished by a competitor.

H.R. 1840—Byron G. Rogers (D, Colo.)—Jan. 10, 1955.

Same as S. 11.

H.R. 11—Wright Patman, (D, Tex.)—Jan. 5, 1955.

Same as S. 11.

The House passed H.R. 1840 on June 11, with an amendment making provisions of H.R. 1840 and H.R. 11 identical, but it was tied up in Senate Committee too long for action during this session, in spite of pressure brought to bear by many interested groups.

Armed Forces

H.R. 9838—Overton Brooks (D, La.)—March 8, 1956.

Authorizes the transfer of officers of the Nurse Corps of the Regular Navy or Naval Reserve, who are qualified in one or more of the specialties of dietetics, physical therapy, or occupational therapy, to the Medical Service Corps of the Navy.

The Senate passed the bill on June 11 and it became *P.L. 606* when it was signed by the President June 21, 1956.

H.R. 483—Dewey Short (R, Mo.)—Jan 5, 1955.

Provides for the appointment of doctors of osteopathy in the Medical Corps of the Army and the Navy. Sets forth the educational qualifications required of applicants for such appointments.

The Senate passed the bill on May 21 and it became *P.L. 763* when it was signed by the President on July 24, 1956. The Washington view is that few if any osteopaths will actually be commissioned as long as physicians are available.

Barbiturates

H.R. 11320—Thomas G. Abernethy (D, Miss.)—May 21, 1956.

Reported by Mr. Bible (for Mr. Morse) on June 18, 1956, with amendments.

"Dangerous Drug Control Act for the District of Columbia" makes a general revision broadening and strengthening the provisions of law in the D. of C. relating to narcotics, barbiturates, and dangerous drugs. The bill requires that pharmacists shall make inventories every two years, of all stocks of dangerous drugs as specified under the Act. The FDA lost the right to inspect prescription files, but District of Columbia enforcement officials will have that right.

The House passed the bill on June 11, a Conference Report was adopted by the House and Senate on July 17, and it became *P.L. 764* when the President signed it on July 24, 1956.

(Continued on page 532)

OINTMENTS

Recent Investigations—The papers appearing below consider the effects of various constituents in water-containing ointment bases.

The In Vitro Activity of Some
ANTIBIOTIC OINTMENTS
*Containing Hyaluronidase**

by
Safwat D. Kutob
William J. Sheffield†
Henry M. Burlage‡

SINCE the discovery of a "spreading factor" in 1929 by Duran-Reynals[1] and its identification in 1936 by Meyer *et al.*[2] as the mucolytic enzyme hyaluronidase, many valuable uses have been found for this remarkable agent. Most of these uses are based upon the ability of hyaluronidase to increase the rate and amount of diffusion of substances throughout body tissues. It produces a depolymerization and then subsequent hydrolysis of hyaluronic acid, the viscous polysaccharide of the interstitial spaces of tissue, which normally obstructs diffusion of invading substances. When no hyaluronidase is present, the spread of injected materials is slow, being limited by the hyaluronic acid. If the interstitial pressure is adequate to furnish the necessary mechanical impulse which is normally initiated by injected solutions, hyaluronidase will cause a rapid spreading.

Hyaluronidase has been used to advantage where a rapid absorption of subcutaneously injected fluids, drugs, and various foreign substances is desired. Probably the most extensive use of the enzyme has been in such procedures as hypodermoclysis.[3] It has also been used to a certain extent and with varying degrees of success in the treatment of rheumatoid arthritis, mesenthiolema of the pleura, ankle sprain, hematomas, tenditis, and bursitis.[4, 5, 6]

Another field for a possible widespread use of hyaluronidase is that of local anesthesia. Some workers[7] have demonstrated that hyaluronidase increases by as much as 40% the normal area of skin analgesia resulting from intradermal injection of local anesthetic solutions. More recently Ellin *et al.*[8] found that hyaluronidase not only improved the depth of anesthesia of ethyl aminobenzoate ointments when applied to oral mucosa but also increased the duration of anesthesia over those ointments containing only ethyl aminobenzoate.

The advantages of increasing the penetration of medicinal substances into the dermal layers by topical application is obvious. The possibility that hyaluronidase might increase the penetrating power of medicinal agents in ointment form warranted this preliminary investigation. It was felt that if the activity of some antibiotics could be increased by *in vitro* experiments, it might indicate that *in vivo* studies would be worth while. The primary problem appeared to be the successful incorporation of hyaluronidase into ointments in the face of its ready inactivation by moisture and by mechanical stimulus.

EXPERIMENTAL

Selection and Preparation of Ointment Base.—The principal objective of this work was the *in vitro* study of the effect of hyaluronidase on the activity of several antibiotics when incorporated into a suitable ointment base. The instability of hyaluronidase in the presence of moisture necessitated the use of an anhydrous type base. However, it appeared inadvisable to use an oleaginous base because of a doubtful release of medication.

An ointment base developed by Hickman *et al.*[9] appeared to be satisfactory for the incorporation of

* Abstracted from a thesis submitted to the Graduate Council of the University of Texas College of Pharmacy by Safwat D. Kutob in partial fulfillment of the requirements for the degree of Master of Science in Pharmacy.

† Assistant Professor of Pharmacy, University of Texas College of Pharmacy, Austin.

‡ Dean and Professor of Pharmacy and Pharmaceutical Chemistry, University of Texas College of Pharmacy.

[1] Kaufman, J. W., and Burlage, H. M., *Am. Profess. Pharmacist*, **19**, 200, 284(1953).

[2] Editorial, *Am. J. Roentgenol. Radium Therapy*, **61**, 185 (1949).

[3] Hechter, O., *et al.*, *J. Pediat.*, **30**, 645(1947).

[4] Cohen, A., and McBride, T. J., *Pennsylvania Med. J.*, **53**, 256(1950).

[5] Benzer, P., and Schaffer, A. B., *Oral. Surg.*, **5**, 1315(1952).

[6] Devine, J. C., *Dental Digest*, **60**, 23(1954).

[7] Moore, C. D., *Anesthesiology*, **12**, 611(1951).

[8] Ellin, R. I., Levine, P. J., and Leco, D. E., THIS JOURNAL, **12**, 747(1955).

[9] Hickman, E., *et al.*, "A Study of Certain Fatty Acids and Fatty Acid Amide Esters of Polyethylene Oxide as Emulsifiers in Ointment Bases," thesis, University of Texas College of Pharmacy, Austin, 1955.

the enzyme and antibiotics and for the effective release of these agents. This base has the following composition:

Hickman's Base

Cetyl alcohol	12
Stearyl alcohol	16
Ethofat 60/60[10]	8
Propylene glycol	21
White petrolatum	43

Ethofats are nonionic, synthetic surface-active agents. They are mono-fatty or resin acid esters of polyethylene glycol and are prepared from water-insoluble fatty acids by chemically adding water-solubilizing ethylene oxide groups. Ethofat 60/60 consists of a stearic acid portion and a portion containing 50 mols of ethylene oxide. It has the following type linkage:

$$C_{17}H_{33}—C—O—O—(CH_2—CH_2O)_{50}H$$

It is 60% soluble in benzene and isopropanol, 50% in carbon tetrachloride, 70% in dioxane and acetone, and 75% in water.

The base was prepared by melting the cetyl alcohol, stearyl alcohol, and the petrolatum on a water bath. The Ethofat 60/60 was dissolved in the propylene glycol on a water bath and the two liquids were then mixed at approximately the same temperature and stirred continuously until congealing occurred.

In Vitro Method of Testing Hyaluronidase Activity—An agar-cup plate method was used to test all ointments. The media selected contained peptone and beef extract. The formula, as given by Williams[11] was as follows:

Williams' Medium

Peptone	0.5 Gm.
Beef extract	0.3 Gm.
Distilled water	1000.0 ml.
*p*H	7–7.2

Micrococcus pyogenes var. aureus FDA 209[12] was used as the test organism. Plates were prepared by first introducing approximately 20 ml. of sterile beef extract broth, containing 2% agar, into each plate. This layer was allowed to harden, and a sterilized metal cylinder 0.7 cm. in diameter was then placed in the center of the plate on the layer of agar. Approximately 30 ml. of beef extract broth, which had been seeded with the test organisms, was then introduced on top of the first layer. When this layer had hardened, the cylinder was removed, leaving a small circular cup.

The cup was charged with a 0.3-Gm. to 0.4-Gm. sample of the ointment. This was accomplished with the use of a 1-ml. hypodermic syringe. The tapered tip of the syringe was cut off and the barrel filled with the ointment with the aid of a spatula. The desired quantity of ointment was easily inserted into the agar cup by pressing the plunger.

All plates were observed after 24 hours incubation unless otherwise specified. In order to determine the maximum zone of growth inhibition, the roughly circular, clear zone was measured across two perpendicular diameters. The diameter of the cylinder used to make the cup was subtracted from the average of these two measurements. This value was then divided by two and represented the maximum zone of inhibition.

Control Tests—Before attempting to determine the effect of hyaluronidase[13] on the activity of antibiotics, the ointment base, the enzyme, and the base containing different amounts of the enzyme were tested for any possible bactericidal properties. The ointment base alone as well as 30 and 60 Turbidity Reducing (TR) units of the enzyme alone, added in the dry form and also dissolved in 0.3 ml. of water, produced no inhibition of growth of the test organisms. A mixture of 30 and 60 TR units of the enzyme per Gm. of ointment base also failed to exhibit any inhibitory effect on the growth of the organism.

Preliminary tests were also conducted using an aqueous solution of chlortetracycline HCl, an arbitrary choice, and hyaluronidase to determine the effect of the enzyme on the bactericidal action of the antibiotic. Plates were prepared as previously described except that 3 cups were made in each plate. Cup 1 was filled with 0.2 ml. of an aqueous solution containing 0.2 mg. of chlortetracycline HCl. Cup 2 was filled with 0.2 ml. of an aqueous solution containing 0.2 mg. of chlortetracycline HCl and 60 TR units of hyaluronidase. Cup 3 was filled with 0.2 ml. of an aqueous solution containing 60 TR units of hyaluronidase. The test was performed in triplicate and an average of the three zones of inhibition on each plate was determined. The average zone of inhibition observed in Cup 1 was 11.5 mm., in Cup 2, 16.5 mm., and no zone of inhibition was observed in Cup 3. This clearly showed that the addition of 60 TR units of hyaluronidase increased the bactericidal effect of chlortetracycline HCl when in solution.

In order to establish the fact that chlortetracycline HCl in ointment form would have a bactericidal action when tested by this method, an ointment containing 1.0 mg. of chlortetracycline HCl per Gm. of base was prepared. Samples of this ointment, another sample containing 1.0 mg. of chlortetracycline HCl and 150 TR units of hyaluronidase per Gm., and a third sample containing 150 TR units of hyaluronidase per Gm. of base alone, were tested. The three samples were tested on the same plate and the tests run in duplicate. After incubation, no

AUTHORS' SUMMARY

Ointments containing penicillin G potassium, dihydrostreptomycin, tetracycline HCl, chlortetracycline HCl, oxytetracycline HCl, and chloramphenicol are prepared using a base consisting of cetyl alcohol 12%, stearyl alcohol 16%, Ethofat 60/60 8%, propylene glycol 21%, and white petrolatum 43%.

Various concentrations of hyaluronidase are incorporated into these ointments and their *in vitro* bactericidal action against *Micrococcus pyogenes var. aureus* tested by an agar-cup plate method.

The ointments containing hyaluronidase exhibit a marked increase in the zone of inhibition of the bacteria over those ointments containing only the antibiotics.

Inhibition appears to reach a maximum at a concentration of 210 TR units of hyaluronidase per Gm. of ointment.

[10] Furnished by Armour & Co., Chicago, Ill.
[11] Williams, O. B., "Laboratory Manual for General Bacteriology," Hemphill's, Austin, Texas, 1953, p. 23.
[12] Furnished by the Clayton Foundation for Research, University of Texas College of Pharmacy.
[13] Furnished by Wyeth Laboratories, Inc., Philadelphia, Pa.

Antibiotic Ointments . . . . . *continued*

TABLE I—ZONES OF INHIBITION

Produced with Antibiotic Ointments Containing Varying Concentrations of Hyaluronidase (in mm.)

Ointment	Controls	TR Units of Hyaluronidase per Gm. of Ointment									
		30	*60*	*90*	*120*	*150*	*180*	*210*	*240*	*270*	*300*
Penicillin G potassium, 1000 units/Gm.	10.3	11.5	12.8	15.0	15.3	16.3	16.3	19.5	19.8	19.8	18.0
Dihydrostreptomycin, 1 mg./Gm.	4.0	3.0	4.3	3.5	6.5	5.8	6.0	7.3	6.0	8.3	7.8
Aureomycin, 1 mg./Gm.	9.5	9.3	11.5	8.5	10.5	10.8	9.5	13.8	11.5	11.5	10.5
Achromycin, 1 mg./Gm.	7.5	7.5	8.0	7.0	9.5	10.5	10.5	11.5	12.0	13.0	10.5
Terramycin, 1 mg./Gm.	9.0	9.0	8.8	7.5	9.3	7.8	8.8	11.0	11.0	11.0	10.0
Chloramphenicol, 1 mg./Gm.	5.5	6.0	6.8	5.3	7.5	5.0	7.5	10.0	10.0	10.0	10.5

zones of inhibition were exhibited by the base containing only hyaluronidase. The sample of chlortetracycline ointment showed a zone of inhibition of 8.5 mm., and that sample containing both the antibiotic and hyaluronidase, a 10-mm. zone of inhibition. These results indicated that hyaluronidase also increased the bactericidal activity of chlortetracycline HCl when in ointment form.

Preparation of Test Ointments—Penicillin G potassium, dihydrostreptomycin, tetracycline HCl,[14] chlortetracycline HCl,[14] oxytetracycline HCl,[14] and chloramphenicol were used in the test ointments. Twenty grams of penicillin G potassium ointment was prepared containing 1,000 units per Gm. of ointment. The penicillin powder was incorporated into the base by means of a spatula. In a similar manner, 20-Gm. portions of ointments containing 1.0 mg. of the other antibiotics per Gm. of ointment were prepared. Additional 20-Gm. portions of these ointments were prepared when needed as the tests proceeded.

Aqueous dilutions of lyophilized hyaluronidase were prepared which contained up to 300 TR units per 0.2 ml. Starting with 30 TR units and increasing the concentration of the enzyme by 30-unit increments, a series of ointments containing up to 300 units per Gm. was prepared. Incorporation of the enzyme solution into the ointments was accomplished by a thorough but gentle mixing with a spatula.

Ointments containing only the antibiotics were used as controls. Portions of each of the ointments were used to charge 2 cups in each of 2 agar plates. Thus, a total of 4 tests were carried out simultaneously. Each antibiotic ointment containing the various concentrations of hyaluronidase was tested in a similar manner. The average zones of inhibition produced by the controls were then compared to those exhibited by the ointments containing hyaluronidase. The results of this series of tests are shown in Table I.

Although the results of these tests were encouraging, the inconsistencies shown with certain concentrations of hyaluronidase indicated an inactivation of the enzyme at several points throughout the tests. Another possible factor was the necessity of preparing additional portions of the ointments in order to complete a series of tests. To further insure uniformity in concentration, 10 Gm. of a stock ointment of each of the antibiotics containing 10 times the required amount of the antibiotic was prepared. The desired concentrations of each agent were obtained when 2 Gm. of the stock ointment was diluted with 18 Gm. of base. These stock preparations insured an adequate supply of test ointments to complete a series of tests.

Subsequently, another series of tests was conducted using concentrations of hyaluronidase which had previously given less change in the zones of inhibition than should have been expected for that particular concentration. Thus, 90, 150, 210, and 300 TR units of hyaluronidase were used with the 6 antibiotic ointments. This test also differed from those run previously in that a control was run concurrently with the ointments containing the enzyme on each plate. Each test was run in duplicate and the results are shown in Table II.

TABLE II—ZONES OF INHIBITION

Produced with Antibiotic Ointments Containing Varying Concentrations of Hyaluronidase as Compared to Control on the Same Plate (in mm.)

Ointment	Controls	TR Units of Hyaluronidase			
	Av.	*90*	*150*	*210*	*300*
Penicillin G potassium, 1,000 units/Gm.	16.6	19.3	19.5	19.3	19.8
Dihydrostreptomycin, 1 mg./Gm.	3.7	4.5	4.8	5.0	5.0
Aureomycin, 1 mg./Gm.	7.0	8.8	9.0	9.0	8.8
Achromycin, 1 mg./Gm.	6.6	8.5	8.5	9.5	10.0
Terramycin, 1 mg./Gm.	6.4	9.3	9.0	10.0	10.0
Chloramphenicol, 1 mg./Gm.	6.0	7.0	7.5	8.0	8.3

[14] Tetracycline (Achromycin) HCl, oxytetracycline (Terramycin) HCl, chlortetracycline (Aureomycin) HCl.

DISCUSSION

The fact that all of the antibiotic ointments containing hyaluronidase showed increased bactericidal activity over controls clearly indicated that the enzyme increased the effectiveness of these antibiotics under *in vitro* conditions.

The occasional inconsistencies shown in the changes of the zones of inhibition with different concentrations of the enzyme can be explained only on the basis of inactivation of hyaluronidase

(*Continued on page 525*)

Certain Polyethylene Oxide Esters as Emulsifying Agents in Ointment Bases*

by Eugene Hickman, H. M. Burlage,† and W. R. Lloyd†

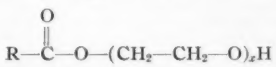
THE RELATIVE merits of oleaginous, absorption and emulsion ointment bases have been studied at some length in recent years.[1] While the opinion is not unanimous, many investigators favor the use of water dispersible bases with antiseptic substances because of the apparently better release of the medication from the base.[2, 3] Earlier bases of this type, such as the Beeler base[4] and hydrophilic ointment U.S.P., contain high concentrations of water and exhibit physical instability due to loss of this water.

Anhydrous washable absorption bases have been described by Newman and Miller[5] and Goldstein,[6] among others. The Goldstein base is a modification of the U.S.P. polyethylene glycol ointment containing polyethylene glycol 400 monostearate, while the Newman and Miller bases are approximately equal mixtures of nonionic surface-active agents with typical w/o absorption bases of the hydrophilic petrolatum type.

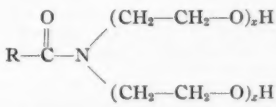
Several investigators[7, 8] have advocated the use of nonionic surface-active agents in ointment bases due to the reduced incidence of irritation and increased compatibility as compared to ionic surface-active agents.

This investigation was planned to explore the possibility of formulating acceptable anhydrous washable bases using lower concentrations of nonionic surface-active agents. The fatty acid esters of polyethylene oxide and the polyethylene oxide substituted amides of fatty acids as typified by the commercially available Ethofats and Ethomids have not received much attention for use in ointment bases. They are readily available, stable and nonionic in character. Representative members of these series were selected for use in this study.

The ester series of these surface-active agents have the following general structure:



The amide series have the following general structure:



A wide variety of such compounds is available. In the ester series the fatty acids are coco fatty acids (C-series); tall oil acids (142 and 242 series); a palmitic-stearic acid mixture (60-series). In the amide types, the amides are derived from coco fatty acids (C-series); oleic acid from red oil (RO-series); hydrogenated tallow (HT-series). The number of mols of ethylene oxide varies from 5 to 50, and is indicated by the second symbol of the type designation. (This number is equal to the number of mols of ethylene oxide plus 10.) Ethofat 60/25, as used in this study, is the fatty acid ester of polyethylene oxide where the fatty acid portion of the molecule is a palmitic-stearic acid mixture and in which 15 mols of ethylene oxide are polymerized in the glycol portion of the molecule.

EXPERIMENTAL

The Ethofats 60/25, 60/60, and 242/25 and the Ethomids HT/25 and HT/60 were selected for use in this study.

The effect of these surface-active agents on the water number of white petrolatum was determined by the method of Halpern and Zopf (Method #2)[9] using a sample of white petrolatum having a water number of 9.5. The results are shown in Table I. Ethofat 60/25 and Ethomids HT/25 and HT/60 exhibit their maximum effect at a concentration of

---

* From the laboratories of the College of Pharmacy of the University of Texas, Austin. Abstracted from a thesis presented to the faculty of the Graduate School, University of Texas, in partial fulfillment of the requirements for the degree of Master of Science in Pharmacy. Presented before the Section on Practical Pharmacy, A.PH.A. Detroit Convention, April 1956.

† Dean and Assistant Dean, respectively, of the College of Pharmacy, University of Texas, Austin.

The authors wish to thank Armour and Co. for furnishing the Ethofats and Ethomids used in this study.

[1] Kolstad, C. K., and Lee, C. O., J. AM. PHARM. ASSOC., *Sci. Ed.*, **44**, 5(1955).

[2] Gershenfeld, L., and Brillhart, R. E., *Am. J. Pharm.*, **111**, 430(1939).

[3] Gershenfeld, L., and Miller, R. E., *Am. J. Pharm.*, **105**, 186(1933).

[4] Beeler, E. C., *Bull. Natl. Formulary Comm.*, **11**, 27(1943).

[5] Newman, H., and Miller, O. H., THIS JOURNAL, **15**, 36 (1954).

[6] Goldstein, S. W., THIS JOURNAL, **15**, 41(1954).

[7] Dodd, M. C., Hartmann, F. W., and Ward, W. C., J. AM. PHARM. ASSOC., *Sci. Ed.*, **35**, 33(1946).

[8] Miller, O. H., THIS JOURNAL, **13**, 657(1952).

[9] Halpern, A., and Zopf, L. C., J. AM. PHARM. ASSOC., *Sci. Ed.*, **36**, 101(1947).

Emulsifying Agents • • • (continued)

in which a general formula is reported for an anhydrous washable ointment base using Ethofats and Ethomids capable of absorbing 35–50% of water and compatible with a wide range of active ingredients.

8% and the Ethofats 60/60 and 242/25 exhibit maximum effect at a concentration of 10%. The maximum effect of Ethofat 242/25 is significantly less than that of the other four agents whose effects were all of the same order of magnitude.

Propylene glycol was incorporated into the base to provide humectant properties when the product is used as a water absorption base and for its contribution to spreadability when applied to the skin. Cetyl and stearyl alcohols were used as stiffeners. The following formula was found satisfactory for the five surface-active agents studied:

Cetyl alcohol	12 Gm.
Stearyl alcohol	16 Gm.
Surface-active agent	8 Gm.
Propylene glycol	21 Gm.
White petrolatum	43 Gm.

Procedure: Melt the cetyl and stearyl alcohols with the petrolatum over a water bath. Add the surface-active agent and the propylene glycol; remove from the heat source and stir until congealed.

The water absorption properties of the five bases were determined in the same manner as for the petrolatum–surface-active agent mixtures. The results are shown in Table II.

TABLE I—WATER NUMBERS[a]

Petrolatum–Surface-Active Agent Mixtures

S.-A. Agent	Concentration, % 0	2	4	6	8	9	10	11
Ethofat 60/25	9.5	16	26	28	40	35	..	..
Ethofat 60/60	9.5	20	23	33	40	41	42	28
Ethofat 242/60	9.5	11	12	15	20	22	26	20
Ethomid HT/25	9.5	11	22	28	40	20	..	..
Ethomid HT/60	9.5	12	18	26	50	40	..	..

[a] The water number is defined as the largest amount of water (Gm.) which 100 Gm. of an ointment base or fat will hold at normal temperature (20° C.).

The five bases were used to prepare a series of 17 ointments of typical active ingredients incorporated into ointment preparations. These ointments were stored at room temperature (25°) for 3 months and at 37° for one month. The results are shown in Tables III and IV.

Ointments of iodine, phenol, resorcinol, and mercuric chloride were prepared with each of the five experimental bases. These ointments were tested by the agar cup method[10] to provide a preliminary evaluation of release of medication from the bases. The results are summarized in Table V.

TABLE II—WATER NUMBERS

Absorption Bases

S.-A. Agent in Base	Concn.	Water Number
Ethofat 60/25	8	40
Ethofat 60/60	8	52
Ethofat 242/25	8	7
Ethomid HT/60	8	40
Ethomid HT/25	8	36

[10] Ruehle, G. L. A., and Brewer, G. M., "United States Food and Drug Administration Methods for Testing Antiseptics and Disinfectants," U.S. Dept. Agr. Circ., 198(1931).

TABLE III—STORAGE STABILITY OF OINTMENTS

Stored at 25° for Three Months

Active Ingredient	Ethofat 60/25	Ethofat 60/60	Ethofat 242/25	Ethomid HT/25	Ethomid HT/60
Boric acid, 10%	U	U	U	U	U
Calamine 17%	U	U	U	U	U
Ichthammol 10%	D	U	U	U	U
Benzocaine 4%	U	U	U	U	U
Ephedrine 1%	U	U	U	U	U
Iodochlorhydroxyquin 3%	U	U	U	U	U
Cade oil 5%	U	U	U	D	U
Ammoniated mercury 5%	U	U	U	U	U
Benzoic acid 12%	S	S	S	S	S
Salicylic acid 6%	S	S	S	S	S
Peru balsam 10%	D	U	U	U	U
Phenol 2%	S	U	U	U	U
Pine tar 10%	S	U	U	U	U
Resorcinol 10%	D	U	D	D	D
Sulfadiazine 5%	S	U	D	U	U
Sulfur 10%	S	U	D	U	U
Tannic acid 20%	S	U	U	S	U

U = unchanged; D = discolored; S = separated.

The test organism was *Staphylococcus aureus* FDA 209 obtained from the laboratory of the Clayton Foundation for Research, University of Texas. Three plates were tested for each ointment, the above zones being calculated from an average of three readings for each of the three plates.

The bases do not contain any ingredients which are known to be irritating, but an exploratory test was carried out using a group of five individual volunteers. The bases were applied to the skin of

TABLE IV—STORAGE STABILITY OF OINTMENTS

Stored at 37° for One Month

Active Ingredient	Ethofat 60/25	Ethofat 60/60	Ethofat 242/25	Ethomid HT/25	Ethomid HT/60
Boric acid 10%	S	U	S	U	S
Calamine 17%	S	U	U	U	S
Ichthammol 10%	S	U	U	U	U
Benzocaine 4%	D	D	D	D	U
Ephedrine 1%	S	U	U	U	U
Iodochlorhydroxyquin 3%	S	U	U	U	S
Cade oil 5%	S	U	D	S	S
Ammoniated mercury 5%	S	U	D	D	S
Benzoic acid 12%	S	S	S	S	S
Salicylic acid 6%	S	S	S	S	S
Peru balsam 10%	D	S	S	S	D
Phenol 2%	S	U	U	U	S
Pine tar 10%	S	S	S	S	S
Resorcinol 10%	D	D	D	D	S
Sulfadiazine 5%	S	U	U	U	U
Sulfur 10%	S	U	U	U	S
Tannic acid 10%	S	U	U	S	U

U = unchanged; D = discolored; S = separated.

(Continued on page 525)

A Study of Nonionic Surfactants in a HYDROPHILIC OINTMENT BASE*

by Charles T. Lesshafft, Jr.,† and H. George DeKay‡

IN A PREVIOUS study,[1] Brij 35[2] was found to be the most suitable hydrophilic nonionic surfactant of those tested for use in the hydrophilic ointment U.S.P. XIV formula. A blend of a hydrophilic and a lipophilic surfactant is considered to produce a more satisfactory emulsion than when the hydrophilic agent is used alone.[3] Since Brij 30[2] is of the same chemical type as Brij 35 it was selected as the lipophilic agent. The purpose of this paper is to find the most suitable combination of these two agents to replace sodium lauryl sulfate in hydrophilic ointment U.S.P. XIV and to evaluate the base as to stability and compatibility.

EXPERIMENTAL

In order to use more than 1% of surface-active agent in the hydrophilic ointment formula, one or more of the other ingredients in the formula must be reduced in amount. It was decided to distribute this reduction equally between the stearyl alcohol and white petrolatum. The basic formula that was used is as follows:

Basic Formula

Brij 35	x
Brij 30	y
Stearyl alcohol	25-½ (x + y − 1)
White petrolatum	25-½ (x + y − 1)
Distilled water	37
Propylene glycol	12
Methylparaben	0.025
Propylparaben	0.015

The ointments were prepared by melting the stearyl alcohol and white petrolatum on a water bath. The melted mixture was adjusted to 80° after adding the Brij 30. The other ingredients, previously dissolved in water and heated to 80°, were added to this mixture and the whole stirred until congealed. It was found that better and more consistent results were obtained in the preparation of the ointments if the temperature was adjusted to 80° instead of 75° which is the temperature given in the U.S.P. for the preparation of the official ointment. The evaluation of the ointments prepared with the various combinations of Brij 35 and Brij 30 are presented in Fig. 1.

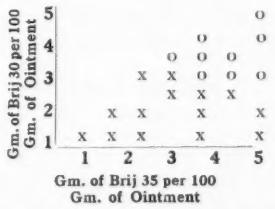


Fig. 1—Evaluation of ointments prepared with various combinations of Brij 35 and Brij 30. *o = satisfactory, x = unsatisfactory.*

Only those combinations involving whole numbers were tried first. Of these, the ointment containing 4% Brij 35 and 3% Brij 30 was superior in appearance and smoothness. Fractional amounts evolving around this combination were then used. The combination of 4.5% Brij 35 and 3.5% Brij 30

AUTHORS' SUMMARY

An ointment base similar to hydrophilic ointment U.S.P. XIV is formulated in which 4.5% Brij 35 and 3.5% Brij 30 replace sodium lauryl sulfate.

The compatibility and stability of the nonionic base is compared with hydrophilic ointment U.S.P. XIV. The nonionic base lost less water than hydrophilic ointment during the 20-day test period. Only a small change in the consistency of the nonionic base occurred upon storage whereas the official ointment showed a considerable increase by comparison. The nonionic base was compatible with a larger number of the agents used in testing the compatibility of the bases.

* From the Research Laboratory, Purdue University School of Pharmacy, Lafayette, Ind. Presented to the Section on Practical Pharmacy, A.PH.A. Detroit Convention, April 1956.

† Assistant Professor of Pharmacy, University of Kentucky. Former Fellow of the American Foundation for Pharmaceutical Education.

‡ Professor of Pharmacy, Purdue University.

[1] Lesshafft, C. T., Jr., and DeKay, H. G., "A Study of Nonionic Surfactants in a Hydrophilic Ointment Base. I. The Screening Procedure." Schedule for publication in *Drug Standards.*

[2] Polyoxyethylene lauryl ether, product of Atlas Powder Company, Wilmington, Del.

[3] Griffin, W. C., *J. Soc. Cosmetic Chemists,* 1 311(1949).

Hydrophilic Base . . . . . *continued*

TABLE I—RESULTS OF CONSISTENCY DETERMINATIONS

Made on Hydrophilic Ointment U.S.P. XIV and the Nonionic Ointment Base Before and After Storage

	Hydrophilic Ointment U.S.P. XIV	Nonionic Ointment Base
Consistency before storage[a]	172	178
	175	179
	171	178
Average	173	178
Consistency after storage		
Oven	160	183
Refrigerator	124	171
Room	107	175
Changes in consistency during storage		
Oven	Increased 13	Decreased 5
Refrigerator	Increased 49	Increased 7
Room	Increased 66	Increased 3

[a] The consistency is reported as the depth, in tenths of a millimeter, of the standard cone during a period of three seconds. The penetration was conducted in 1-ounce ointment jar at 25°.

produced the most satisfactory ointment of all those attempted. The formula for this ointment is as follows:

Optimum Formula

Brij 35	4.5
Brij 30	3.5
Stearyl alcohol	21.5
White petrolatum	21.5
Distilled water	37.0
Propylene glycol	12.0
Methylparaben	0.025
Propylparaben	0.015

The ointments which were designated as being unsatisfactory were grainy. Also, separation of the oil and water phases was observed in all of these at 52° to 54° as they were cooling. Although the ointment containing 5% Brij 35 and 5% Brij 30 was smooth, it had a tacky feel. This was probably due to the large amount of surfactant present.

The nonionic base was evaluated using hydrophilic ointment U.S.P. XIV as a comparison. The consistency of each base was determined at the time of its preparation by a method similar to the U.S.P. method for determining the consistency of petrolatum. The method was previously described in another paper.[1] A sample of each base was stored in a refrigerator,[4] in an oven,[4] and at room temperature for 35 days. The consistency of these samples was determined at the end of the storage period. The results of the consistency determinations are given in Table I.

The nonionic base exhibited very little change in consistency upon storage, whereas the hydrophilic ointment showed a considerable increase by comparison. The samples were also examined by spreading them on a glass slab and on the back of the hand and tested to observe whether they could be removed from the hand with water. All of the samples spread satisfactorily and were removed by washing with water. The nonionic base spread more evenly and was smoother in appearance.

TABLE II—AMOUNT OF WATER LOST

From Hydrophilic Ointment U.S.P. XIV and the Nonionic Ointment Base during Twenty Days

	Hydrophilic Ointment U.S.P. XIV	Nonionic Ointment Base
Sample 1	0.82 Gm.	0.65 Gm.
Sample 2	0.86 Gm.	0.61 Gm.
Average	0.84 Gm.	0.63 Gm.

[4] The temperature of the refrigerator used throughout the experiment was 5° ± 2°, the temperature of the oven, 39° ± 1°.

The rate of water loss was determined on two samples of each ointment over a 20-day period by the method developed in the previous paper.[5] The total amount of water lost from each sample during the 20 days is recorded in Table II. The nonionic base lost less water than the hydrophilic ointment.

Each base was used to prepare ointments with a number of drugs used in dermatological practice for the purpose of determining their compatibility with these bases. These drugs were selected for the most part from the ingredients of the official ointments. Hydrochloric acid and sodium hydroxide were also used in order to observe the compatibility of acids and alkalies with the nonionic base.

A sample of each ointment was stored for 35 days in a refrigerator, in an oven, and at room temperature. At the time of their preparation and at the end of the storage period the ointments were examined by spreading them on a glass slab and on the back of the hand and tested to observe whether they could be removed by washing with water.

DISCUSSION

For convenience in presenting the results of the above observations, the ointments have been divided into 4 groups. The first group contains those combinations which produced satisfactory ointments. The second group contains those which produced satisfactory ointments as far as the spreading and washing qualities were concerned. However, a color change was noticed in the oven sample of these ointments. In all cases the oven sample was a darker color. The room and refrigerated samples appeared normal. The ointments classified in the third group were satisfactory except a color change was noticed, not only in the oven sample, but in one of the other samples as well. The fourth group contains those combinations which were not considered satisfactory because of their spreading and washing qualities. These results are recorded in Table III along with the concentration of each ingredient in the ointments.

The "water" ointments were prepared for the purpose of serving as a control when observing the sodium hydroxide and hydrochloric acid ointments. No differences were detected between these ointments and the "water" ointments.

The aluminum chloride ointment prepared with hydrophilic ointment was placed in group 4 because none of the samples could be removed from the skin by washing. This ointment was not washable even at the time of its preparation. It was also observed the base became stiffer during incorporation of the aluminum chloride solution.

The zinc oxide, calamine, and neocalamine ointments prepared with hydrophilic ointment were placed in group 4 because all samples left a film on the skin after being washed with water.

A color change was observed in the room sample as well as the oven samples with the combinations

[5] Lesshafft, C. T., Jr., and DeKay, H. G., "A Study of Nonionic Surfactants in a Hydrophilic Ointment Base. II. Their Effect on Water Loss." Scheduled for publication in *Drug Standards*.

that were placed in group 3. However, more of a color change was noticed in the oven sample. The anthralin ointment prepared with hydrophilic ointment was an exception in that the room sample possessed a yellowish color which appeared normal. The oven sample had a darker yellow color while the refrigerated sample had a tannish coloration. The chrysarobin ointments were unusual in that the surfaces of all of the samples possessed a darker color than the interiors. The surfaces of the oven samples were darker than the room samples and these were darker than the refrigerated samples. When the surface was removed, the samples prepared with the nonionic base appeared normal in color while the samples prepared with hydrophilic ointment had a brownish coloration. The oven sample was darker in color than the room and refrigerated samples, which were the same.

The scarlet red, coal tar, and peru balsam ointments prepared with hydrophilic ointment were placed in group 4 because they possessed unsatisfactory spreading and washing qualities in addition to a color change being observed in the oven sample. The scarlet red and coal tar ointments left a film on the skin after being washed. The scarlet red oven sample left more of a film than the room and refrigerated samples. The oven sample of the peru balsam ointment did not spread as well as the room and refrigerated samples nor as well as the other ointments prepared with hydrophilic ointment.

The tannic acid ointment prepared with the nonionic base crumbled when washed. However, it was removed and left no film. When the ointment was prepared, it was observed that it was considerably stiffer than the base; also the same washing characteristic as described above was observed.

Water separated from the samples of the betanaphthol ointment prepared with the nonionic base when they were spread on the slab. The oven sample of the ointment prepared with hydrophilic ointment had a granular appearance when spread on the slab and did not spread as well as the room and refrigerated samples. It was considerably stiffer than the other samples. The oven samples of both ointments had a tannish coloration.

The oven samples of both ointments containing Whitfield's combination (benzoic 12%, salicylic acid 6%) had a very hard crust on the surface. None of the samples spread as well as the other ointments prepared with the respective bases. Water separated from the room and oven samples of the ointment prepared with the nonionic base when spread on the slab. The oven sample of the ointment prepared with hydrophilic ointment left a film on the skin when washed with water.

None of the samples containing pine tar could be removed from the skin by washing with water even at the time of the preparation of the ointments.

TABLE III.—CLASSIFICATION OF OINTMENT INGREDIENTS

According to Their Compatibility with Hydrophilic Ointment U.S.P. XIV and with the Nonionic Ointment Base[a]

Ingredients and Concentrations Used in the Ointments	Nonionic Ointment Base Group	Hydrophilic Ointment U.S.P. XIV Group
Distd. water 1 cc. per 10 Gm. of base	1	1
Hydrochloric acid, 10% soln., 1 cc. per 10 Gm. of base	1	1
Sodium hydroxide, 10% soln., 1 cc. per 10 Gm. of base	1	1
Sulfur, precipitated, 10%	1	1
Boric acid 10%	1	1
Sulfadiazine 5%	1	1
Calomel 30%	1	1
Capsicum oleoresin 5%	1	1
Phenol 2%, glycerin 2%	1	1
Mercury bichloride 0.03%	1	1
Aluminum chloride, 25% soln., 10%	1	4
Zinc oxide 20%	1	4
Calamine 17%	1	4
Neocalamine 15%	1	4
Ethyl aminobenzoate 5%	2	2
Ichthammol 10%	2	2
Juniper tar 10%	2	2
Belladonna extract 10%, diluted alcohol 5%	2	2
Mercuric oxide, yellow, 1%	2	3
Mercuric oxide, red, 10%	2	3
Anthralin 1%	2	3
Scarlet red 5%	2	4
Coal tar 5%	2	4
Peru balsam 10%	2	4
Ammoniated mercury 5%	3	2
Resorcinol 6%, glycerin 6%	3	3
Chrysarobin 6%, chloroform 7%	3	3
Tannic acid 20%, glycerin 25%, exsicc. sodium sulfite 0.2%	4	2
Betanaphthol 5%	4	4
Benzoic acid 12%, salicylic acid 6%	4	4
Pine tar 50%	4	4
Iodine 4%, potassium iodide 4%, glycerin 12%	4	4

[a] *Group 1*—Satisfactory; *Group 2*—Satisfactory except for color change in the oven sample; *Group 3*—Satisfactory except color change was observed, not only in the oven sample, but in one of the other samples as well; *Group 4*—Unsatisfactory because of the spreading and washing qualities of the ointments.

Water separated from the samples of the iodine ointment prepared with hydrophilic ointment when they were spread on the slab. The ointment prepared with the nonionic base did not spread as well as other ointments prepared with this base. At the time of preparation the nonionic base became stiffer when the iodine solution was incorporated.

For a comparison of the two bases, the total number of ointments in each group is listed below.

	Nonionic Ointment Base	Hydrophilic Ointment U.S.P. XIV
Group 1	14	10
Group 2	10	6
Group 3	3	5
Group 4	5	11

From these results it is evident that the nonionic base produced more satisfactory ointments with the ingredients tested than hydrophilic ointment.

The Water Absorptive Power of SOME OINTMENT BASES*

by A. J. Aguiar† and C. Lee Huyck†

HYDROPHILIC ointment bases[1] have found a definite place in pharmacy because of their effectiveness in medicine and their cosmetic-like appearance. There are three kinds:

(a) Those made with a cholesterol concentrate dissolved in petrolatum.
(b) Those made with a cholesterol concentrate containing lanolin dissolved in petrolatum.
(c) A large group of oil-in-water emulsifiable bases containing sodium lauryl sulfate and petrolatum.

AUTHORS' SUMMARY

As was to be expected, the ointment base of least water-absorptive power was white ointment U.S.P., while the base of greatest water-absorptive power was the base containing a mixture of oleic acid esters and an amide of diethanolamine. Very close to the latter is the base of liquid petrolatum and polyethylene glycol emulsifier. The base containing a mixture of oleic acid esters and an amide of diethanolamine absorbed about 300% water by the cold method and about 400% water when melted. This study should point up the fact that the fusion method of adding water to the ointment base produces greater absorption than the cold method, and the fusion method should be used where large amounts of solutions are to be absorbed.

Cetyl alcohol, wax, and spermaceti have the property of making petrolatum water absorbing. One of the most important ingredients, however, is cholesterol. In this connection, the esters of cholesterol mixed with cholesterol[1] have been found to be more effective than cholesterol alone in making petrolatum water absorbing.

Previous Investigations

After storing 18 different hydrophilic ointment bases[2] for two years at room temperature, the bases containing water deteriorated faster than the ointment bases without water. With the exception of hydrous wool fat,[3] hydrophilic ointment bases containing water should be prepared by the pharmacist when needed for use. All of them should be kept in tightly closed containers. With the exception of the anhydrous lanolin-petrolatum type, they should not be used for ophthalmic application because they have been found to be irritating.

Among the surface-active agents[4] applicable to these bases, the nonionic surface-active agents are better than the ionic type because they are not irritating to the skin. Also, they do not have the general incompatibilities of the cationic and anionic surface-active agents.

The reasons for the popularity[5] of the hydrophilic ointments are:

(a) They are easily washed off the skin with water.
(b) Since the water content can be varied in each case, consistency can also be varied.
(c) By buffering, the *p*H of the bases can easily be adjusted to that of the skin.

* Presented to the Section on Practical Pharmacy, A.PH.A. Detroit Convention, April 1956.

† From the Department of Industrial Pharmacy, St. Louis College of Pharmacy & Allied Sciences, St. Louis 10, Mo. Dr. Huyck is Professor of Industrial Pharmacy at the St. Louis College. Mr. Aguiar's current address is University of Wisconsin School of Pharmacy, Madison.

[1] Johnston, G. W., and Lee, C. O., J.A.PH.A., **29**, 237 (1940).

[2] Green, M. W., *Bull. National Formulary Committee*, **12**, 221(1944).

[3] Zopf, L. C., *Am. Profess. Pharmacist*, **11**, 1110(1945).

[4] Jenkins, G. L., *et al.*, "Scoville's Art of Compounding," 8th ed., The Blakiston Co., New York, 1952, p. 329.

[5] Bhatia, V. N., and Zopf, L. C., THIS JOURNAL, **10**, 410(1949).

(d) They have a high degree of compatibility with most drugs.
(e) They are stable to heat.
(f) Therapeutic agents incorporated in these bases show greater penetration through the skin than nonhydrophilic ointment bases.

Two disadvantages of absorption bases over the petrolatum grease type bases are:

(a) Loss of water on exposure to air.
(b) Liability to mold growth after water has been added.

The so-called absorption bases containing mixtures of cholesterol and cholesterol stearate, cetyl alcohol, and cetyl stearate containing a definite amount of water were found to lose less water over a period of time than oil-in-water hydrophilic bases containing the same amount of water.[6] The reason is obvious—the water is on the inside in the former case and on the outside in the latter.

Aerosol OT and Duponol C[7] are two surface-active agents used in preparing oil-in-water hydrophilic bases. The fatty acid esters of sorbitol and mannitol[8] produce a greater increase in water absorptive power than the waxes such as beeswax and spermaceti when added to petrolatum.

Recent Advances

Recent advances in ointment base formulations[9] have shown that some of the bases are not emulsions although they mix with water. These bases include the polymers of ethylene glycol which are usually used in the anhydrous form. Also, the hydrated forms of colloidal clays such as bentonite and the hydrated cellulose derivatives such as methylcellulose and carboxymethylcellulose are in this group. The polyethylene glycol compounds have gained favor as ointment bases in that while they are not emulsions they are readily soluble in water and are removed by water. They also possess the added advantage that any melting point and viscosity desired may be obtained by mixing various proportions of the low and high polymers.

In a study of the effect of the addition of a number of saturated high monohydroxy alochols to petrolatum,[10] cetyl and stearyl alcohols caused the greatest increase in the water number. After the addition of the maximum amount of water, sweating was evidenced at higher temperatures. The results indicated that the water number was influenced by temperature. The emulsions formed were of the water-in-oil type.

An improved anhydrous lanolin produced by hydrogenation[11] was described as white, odorless, and nonviscous and it was able to absorb three to four times its own weight of water. This is 1.5 to 2 times the amount of water ordinary anhydrous lanolin is able to absorb.

Ointment bases of the water-in-oil type[12] upon exposure to air lose a considerable portion of the water that makes up the external phase. This loss of water was accompanied by a decided change in properties. On exposure, cracks appeared on the surface of the bases; washability decreased or disappeared, and the dehydrated product was virtually useless. The alcohol ester mixture[12] in combination with petrolatum changed the surface characteristics in such a way as to hinder evaporation of the water.

Certain cholesterol esters[12] which appeared to possess no emulsifying action by themselves were capable of improving the effectiveness of cholesterol. It was found that 3% cholesterol in soft paraffin emulsified 250% of water while 3% each of cholesterol and cholesterol stearate absorbed 800%. The water-absorbing property[13] of this absorption base was due to the formation of a water-in-oil emulsion with the aid of relatively hydrophobic surface-active agents. This washable absorption base first formed a water-in-oil emulsion and then as more water was added a phase reversal took place so as to form an oil-in-water emulsion. To meet the requirements for the ideal base, this phase reversal should not occur until at least 50% of its weight in water is added. This property can also be accomplished by use of nonionic emulsifiers intermediate in their hydrophobic and hydrophilic characteristics or by proper combination of hydrophilic and hydrophobic emulsifiers.

A Simple Absorption Base

A preparation[14] possessing more hydrophilic properties than wool fat was obtained when wool fat was blended with liquid petrolatum and paraffin, such as the following:

Wool fat	5 Gm.
Liquid paraffin	25 Gm.
Soft paraffin (white petrolatum U.S.P.)	75 Gm.

This probably is the simplest absorption base which is capable of absorbing an equal weight of water.

It was reported[15] that Aracel C (sorbitan sesquioleate), when mixed with petrolatum in the

[6] Cataline, E. L., Cook, M. B., and Jeffries, S. F., THIS JOURNAL, **11**, 36(1950).
[7] Jones, E. R., and Lewicki, L. B., J.A.PH.A., *Sci. Ed.*, **41**, 509(1951).
[8] Kednessy, G., and Trager, L. S., *Magyar-Gyogyszereszt-udomani Tarsalag*, **21**, 213(1947).
[9] DeNavarre, M. G., *Bull. Am. Soc. Hosp. Pharm.* **9** 579(1952).
[10] Halpern, A., and Zopf, L. C., J.A.PH.A., *Sci. Ed.*, **36**, 101(1947).
[11] Anon., *Mfg. Chemist*, **24**, 522(1953).
[12] Cataline, E. L., Cook, M. B., and Jeffries S. F., *loc. cit.*
[13] Newman, H., and Miller, O. H., THIS JOURNAL, **15**, 36(1954).
[14] Martin, B. K., *Mfg. Chemist*, **25**, 291(1954).
[15] Anon., *Drug and Cosmetic Ind.*, **77**, advertisement opposite 32(1955).

TABLE I—ABSORPTION BY COLD METHOD

Gm. Water Absorbed per 100 Gm. Ointment Base at Room Temperature

Ointment Base	Water Gm.	Water Gm.	Average Gm.
Hydrophilic ointment U.S.P.	32.81	33.21	33.01
Hydrophilic petrolatum U.S.P.	41.08	42.03	41.55
Rose water ointment U.S.P.	107.9	103.4	105.60
White ointment U.S.P.	56.0	54.00	55.00
Base of high alcohols, petrolatum glycerin, and an emulsifier	73.4	73.6	73.50
Eucerite type base	148.6	144.2	146.40
Base of liquid petrolatum and polyethylene glycol emulsifier	200.3	201.3	200.8
Base of oleic acid esters and an amide of diethanolamine	350.0	349.0	349.5
Sorbitan sesquioleate in petrolatum	135.0	137.3	136.1
Polyhydric alcohols, esters, propylene glycol, and liquid petrolatum	207.0	207.6	207.3

TABLE III—ADVANTAGE OF FUSION METHOD

Average Per Cent Water Absorbed by Melted and Congealed Ointment Bases and Per Cent Increase of Water Absorbed by Melted Base over Congealed Base

Ointment Base	Cold Method Gm.	Fusion Method Gm.	Increase %
Hydrophilic ointment U.S.P.	33.01	307.27	831.1
Hydrophilic petrolatum U.S.P.	41.55	258.75	522.9
Rose water ointment U.S.P.	105.6	129.4	22.5
White ointment U.S.P.	55.0	63.85	16.1
Base of high alcohols, petrolatum, glycerin and emulsifier	73.5	314.4	327.7
Eucerite type base	146.4	276.95	89.2
Base of liquid petrolatum and polyethylene glycol emulsifier	200.8	450.5	124.4
Base of oleic acid ester and an amide of diethanolamine	349.5	452.0	29.3
Sorbitan sesquioleate in petrolatum	136.1	249.85	83.6
Polyhydric alcohols, esters, propylene glycol and liquid petrolatum	207.3	310.00	49.5

proportion of 10 ml. of Aracel C to 90 Gm. petrolatum, absorbed 1660 ml. of water. It was not clear in this case whether or not a reversal took place after 50% of the water had been added.

EXPERIMENTAL

Hydrophilic ointment bases (4 official and 6 commercial) were investigated to determine the quantity of water they "absorb" at room temperature and after melting.

A weighed quantity of the base was placed in a tared beaker and water was added from a buret in small quantities with constant stirring with a glass rod. When the hydrophilic base no longer took up any water and still had an ointment-like consistency, the beaker was tilted and the excess water was drained off. The beaker was then weighed and the increase in weight was recorded.

In determining the value by the fusion method, it was found that if the water was first heated to the temperature of the melted base before adding, no more water was "absorbed" than if the water was added at room temperature. Therefore, to determine the amount of water the base absorbed on melting, the beaker with the weighed quantity of the base was allowed to melt on a water bath. When the base had all melted, the water was added gradually. The base was allowed to congeal at room temperature and the excess water was allowed to drain off. The increase in weight was determined and calculated in Gm. of water per 100 Gm. of the base. With both the hot and the cold methods two readings were taken for each base and the average of the two was determined. The results are reported in Table I and Table II.

TABLE II—ABSORPTION BY FUSION METHOD

Gm. Water Absorbed per 100 Gm. Melted Ointment Base

Ointment Base	Water Gm.	Water Gm.	Average Gm.
Hydrophilic ointment U.S.P.[a]	307.82	306.72	307.27
Hydrophilic petrolatum U.S.P.	259.3	258.2	258.75
Rose water ointment U.S.P.[b]	130.6	128.3	129.40
White ointment U.S.P.	63.4	64.3	63.85
Base of high alcohols, petrolatum, glycerin, and an emulsifier	313.2	315.6	314.4
Eucerite type base	274.3	279.6	276.95
Base of liquid petrolatum and polyethylene glycol emulsifier	450.0	451.0	450.5
Base of oleic acid esters and an amide of diethanolamine	453.0	451.0	452.0
Sorbitan sesquioleate in petrolatum	249.4	250.3	249.85
Polyhydric alcohols, esters, propylene glycol and liquid petrolatum	310	310	310

[a] Maximum water to obtain ointment-like consistency on cooling to 12°C.

[b] Separated into oil and water layers on melting.

DISCUSSION

The experimental results indicate that the hydrophilic ointment bases are able to "absorb" a greater amount of aqueous solution if the bases are first melted before the solution is added than if the bases are not melted. It was found that if the water was first heated to the temperature of the melted base before it was added, the base did not absorb any more water than if the water was added at room temperature. The incorporation of the water was found to be much easier if the water was added to the hydrophilic base in small quantities rather than large quantities at a time.

After the addition of the maximum quantity of water to hydrophilic ointment U.S.P., loss of the ointment-like consistency was noted. If the melted ointment base was allowed to congeal quickly after the addition of water by placing it in the refrigerator at 12°, no loss of ointment-like consistency was noted even after warming to room temperature. When rose water ointment was heated to the melting point, the water and oil separated in layers.

From the results it can be seen that the official ointment bases can absorb as much water as some of the commercial ointment bases. The ointment base should be melted on a water bath since no higher temperature is necessary and the tendency of permanent injury to the base is lessened.

Emulsifying Agents

• • • • • • • • • • • • • • *from page 518*

the inner forearm and observed after 48 hours of contact. None of the subjects exhibited signs of irritation or sensitivity in this test.

DISCUSSION

The Ethofats and Ethomids produce satisfactory washable absorption bases at a concentration of 8% when combined with petrolatum, cetyl and stearyl alcohols, and propylene glycol. The concentration of surface-active agent found most desirable is of the order of magnitude that would be predicted from the water numbers. The formulated bases, with the exception of that prepared from Ethofat 242/25, exhibit water absorption properties of 36 to 50% of their weight.

Only the base prepared with Ethofat 60/25 showed a poor range of stability when combined with typical ointment ingredients. None of the bases were satisfactory when combined with organic acids such as benzoic and salicylic acids. All of the bases showed greater deterioration when stored at elevated temperatures (37°). In regard to stability, the five bases studied would be ranked as follows:

1. Ethofat 60/60 — Best
2. Ethofat 242/25, Ethomid HT/25, Ethomid HT/60 — All three approximately equal and satisfactory
3. Ethofat 60/25 — Unsatisfactory

No significant differences in release of medication was observed between the bases as evaluated by the agar cup method. Some increase in the zone of inhibition over that obtained from petrolatum was evidenced with iodine, resorcinol, and mercury bichloride, but the magnitude of this increase was less than has been reported for o/w emulsion bases and polyethylene glycol bases. No effect was obtained with 2% phenol from any of the bases, as has been reported with oleaginous and other water-miscible bases.[3]

If water is to be incorporated into these bases, it is probable that antiferments should be added to the emulsified base.

TABLE V—EVALUATION OF EXPERIMENTAL BASES
With the Aid of the Agar Cup Method

Active Agent	Zone of Inhibition (mm.)					
	Petrolatum *Control*	Ethofat *60/25*	Ethofat *60/60*	Ethofat *242/25*	Ethomid *HT/25*	Ethomid *HT/60*
Control	0	0	0	0	0	0
Iodine 4%	2.6	8.1	9.5	8.0	7.3	6.8
Phenol 2%	0	0	0	0	0	0
Resorcinol 10%	0	7.8	7.5	7.0	8.0	7.5
Mercuric chloride 0.3%	5.3	6.7	7.0	9.5	7.0	4.1

CONCLUSIONS

Ethofats 60/60 and 242/25 and the Ethomids HT/25 and HT/60 can be formulated into satisfactory washable absorption bases with cetyl and stearyl alcohols and propylene glycol at a concentration of 8% w/w. Ethofat 60/60 is probably the most satisfactory of these surface-active agents for this use.

Such bases are compatible with a wide range of active ingredients but are not satisfactory when used with organic acids.

These bases release medication more readily than petrolatum, as evidenced by the agar cup method.

Antibiotic Ointments

• • • • • • • • • • • • • • *from page 516*

at these points. Although the procedure used to dissolve the enzyme and incorporate it into the ointment was duplicated as exactly as possible in every case, nevertheless the activity of the enzyme may not always have been maintained at its highest level.

Inactivating Effect of Water

Undoubtedly the presence of even small amounts of water used to dissolve the hyaluronidase had some inactivating effect. Possibly even more pertinent was the effect of the mechanical action necessary to incorporate the enzyme into the ointments. Inconclusive results were obtained in this work when certain agents were used as protective additives, but they at least indicated that such protective measures might be used successfully. Further work is being conducted along these lines.

The results in Tables I and II indicated that the increase in bactericidal activity of the antibiotics reached a maximum when the ointments contained 210 TR units of hyaluronidase per Gm. In general, bactericidal activity was not increased significantly with higher concentrations of the enzyme and, in some cases, the activity appeared to decline. This would not appear to be of great significance as it would merely indicate that this concentration of hyaluronidase was the optimum for the particular substrate used. It would seem logical to assume that the most effective concentration would change in relation to the substrate with which the ointment came in contact.

PHARMACISTS IN Civil Defense

by John M. Whitney, M.D.*

THE FCDA is grateful to Dr. Fischelis, Secretary of the AMERICAN PHARMACEUTICAL ASSOCIATION, for the relationships that are now beginning to be established with the A.PH.A. and with the pharmacists of the country. Dr. Fischelis came over to Battle Creek to visit us and we discussed many ways in which the pharmacists could be of great value to the country in Civil Defense.

Civil Defense Useful in Natural Disasters

Civil Defense is everybody's business. It is a form of insurance. It is something everyone thinks he needs but hopes he will never have to use in its full force and capacity. Of course, Civil Defense has demonstrated its value in natural disasters. State organizations and local organizations are taking more and more interest as they become better trained in rescue and disaster work after natural disasters, of which there are quite a few each year.

Concept of Civil Defense

The concept of Civil Defense starts with the individual. Everyone should be trained not only to take care of himself or herself, but also to help someone else who cannot take care of himself. *Should a serious disaster, an all-out attack on this country, come the nation would be divided into two categories—those who need help and those who can help.*

This concept of self-help and mutual help extends from the individual right on through the family, through the community, the neighborhood through each city and each state, on into the next one. No city or area is self-sufficient. Help must come in from the outside in the light of the modern weapons that the enemy has the capability of delivering.

What is the major medical problem in Civil Defense? It is the problem of mass casualty care. It is actually created by the fact that within a few seconds large numbers of casualties running into the hundreds of thousands can be produced. Should this country ever be attacked under such conditions, professional help will mainly have to come from the people on the spot, many of them without specialized training, with shortages of supplies and equipment, and under the most chaotic conditions of lack of communications, lack of transport, and lack of support, or direction. That, then, means an attempt must be made to make the best plans possible in advance, because it is too late after something happens.

There will be a grave shortage of professional personnel should this country suffer large numbers of casualties. The professional personnel will probably suffer a larger proportion of casualties because there is a concentration of professional personnel within the large population centers, just as there are concentrations of hospital beds within the target areas.

It means that there are not going to be enough physicians and nurses to render the needed medical care. What must be done? The physicians and the nurses must be given more hands and feet with which to work. This demands application of a principle called regrading by the American Medical Association. What does it mean? Very simply, that pharmacists will probably have to do things that an M.D. usually does. Dentists also will be doing things an M.D. usually does. A medical student or a nurse will probably have to do things that a physician ordinarily does, a student nurse will have to take on duties that a graduate or professional nurse usually does, and so on right down the line. Otherwise, it will be impossible to get on top of a large casualty load which has been estimated to be as high as 10,000,000 casualties, or more, perhaps.

Abstracted from remarks made before the House of Delegates of the AMERICAN PHARMACEUTICAL ASSOCIATION during the Detroit Convention, April 1956.

* Director, Health Office, Federal Civil Defense Administration, Battle Creek, Mich.; Medical Director, U.S. P.H.S.

The CD characterization on page 526 is from the pen of Al Capp, creator of Li'l Abner, and goes under the temporary name of Mr. Civil Defense. A nationwide contest in connection with NATIONAL CIVIL DEFENSE WEEK hopes to find a better name for him.

The objectives of NATIONAL CIVIL DEFENSE WEEK, September 9–15, are:

Sunday, September 9—Preparedness in the nation.
Monday—Our town Civil Defense program today.
Tuesday—Preparedness of the individual.
Wednesday—Preparedness in the school.
Thursday—Preparedness in the home and neighborhood.
Friday—Preparedness at work.
Saturday—Preparedness in the community.

All pharmacists should cooperate in promoting the objectives of NATIONAL CIVIL DEFENSE WEEK.

Hospital Requirements

Over half of the hospital beds are located in the target cities. We expect to lose them. Out of the half that is left, those available for general care would number less than half a million. If they could be expanded 3 for 1, less than 1,500,000 beds would still be available.

Based on the Japanese experiences and on military combat, about two-thirds of all those casualties that survive the first 24 hours will need or require hospitalization. If there were 5,000,000 casualties, 3,500,000 hospital beds would be needed. Since the ones that are left, when completely expanded, would provide only 1,500,000, the Civil Defense emergency hospital has been developed. It is a 200-bed unit, completely self-sufficient, with 10 wards of 20 beds each. It can be transported in a van. It has three operating rooms. It has a pharmacy, a laboratory, an X-ray machine, and standard army field equipment. A polaroid X-ray may be taken in one minute.

What is the staff that is required for this hospital? About 20 medical officers, about 40 nurses, and about 300 other people who must, or should, receive some sort of training are required. About 5 or 6 pharmacists are required just to handle the supplies because, although it has only 200 beds, there is going to be a heavy load of casualties flowing to that hospital and there will be as quick a turnover as possible.

The goal is 8,000 first aid stations. That would mean 8,000 pharmacists, if they were only one deep in these stations throughout the country, and all positions should be three deep. The goal is 5,000 emergency hospitals. Well, four pharmacists in each, if they were one deep, would mean that 20,000 pharmacists would be needed. So Civil Defense does not have to create a demand for pharmacists like the armed services do.

Chemical, Biological, and Radiological Warfare Defense

In the field of chemical and biological defense and in radiological defense, the pharmacist, by the very nature of his training and experience in physics, biology, bacteriology, and the related sciences, is peculiarly suited for active duty, manning and training. There is a definite threat of chemical warfare in this country. If an enemy wants to kill people and not disturb anything and not spend a lot of money doing it, then the best thing in the world he can use is nerve gas. It does not take very much; it does not take long to kill, as most pharmacists know. The only prompt antidote for nerve gas thus far, in spite of what was printed about a development recently at Columbia University, is atropine sulfate or tartrate. But it is useless unless you have it with you at the time. The best protection against nerve gas is a suitable protective mask.

As of this moment, and probably for many months to come, the people in this country are not going to have protective masks with them and are not going to have self-injection devices with atropine in their pockets or hanging around their necks. That is a goal toward which FCDA is working. Under development by the Army Chemical Corps is a civilian protective mask. It is not called a gas mask because it will protect against biological warfare as well as chemical warfare and will also protect against the inhalation of radioactive particles.

This Government has not yet come to the point where it is willing to recommend that each citizen either provide himself with a gas mask or that the Government make one available. Great Britain has already done that. However, the U.S. is tooling up so that by the end of this fiscal year molds which are plastic injection devices will be available, and any of several hundred plastic injection manufacturers in the country can immediately take a mold and go into assembly line production on a civilian gas mask. Of course, the organizational gas mask is already available, and a good many of the states and cities have procured them. This mask for the Civil Defense workers is almost the same as the military mask with a cannister.

You have heard a lot about radiological fallout since the Strauss announcement of last year. It is, of course, very serious, but it is something that can very easily be protected against. It is just a question of either distance or shelter. CD leaders think that there must be a combination of those two—in other words, the evacuation concept as well as the shelter concept. There is plenty of training material going out now. Every state can get a complete training kit—the instruments, and samples of radioactive materials. FCDA started operating a radiological defense training school at Battle Creek in January.

(Continued on page 536)

Typical Days

FROM THE SECRETARY'S DIARY FOR JULY 1956

2nd Now joining representatives of various government agencies and others concerned in giving testimony before the Senate Committee on Appropriations with regard to property readjustment involving the expansion of our building facilities.

6th A visit from Willis C. Pflugh, Division Manager for McKesson and Robbins in San Diego, Calif., who was on a quick trip South and passed through Washington en route. It is always a pleasure to see our West Coast members and give them the opportunity to witness A.PH.A. activities at Headquarters.

10th Many topics of unusual importance considered at today's staff meeting with special emphasis on the scheduling of National Pharmacy Week. Each year this important professional promotion takes more time, effort and materials, and it is pleasing to note how this activity has grown. Chairman Lansdowne and the members of the Public Relations Committee, with the able administration of Charles Rabe and the cooperation of A.PH.A. Branches and State Associations, are making this effort to publicize the pharmacist and his professional activities click better than ever.

12th At lunch today with Richard Ziesing, Jr., Vice President and Advertising Director of the *Ladies' Home Journal*, and Jack McKay, of the staff of this publication, discussing the problems incident to advertising drug products in a manner that will not mislead the public.

13th An interesting conference with Heinz Norden of the Medimetric Institute, who came to explore with Editor Eric Martin and members of THE JOURNAL staff the advantages of certain types of readership and advertising surveys. An enjoyable visit with Miss Minerva Vavra, A.PH.A. member from Chicago, who came to present a contribution to the A.PH.A. Building Fund, and later in the day another contribution brought in person by the daughter of Harvey J. Norgaard, an Iowa member of the ASSOCIATION, who was on her way to Europe with a group of schoolmates. These personal calls and contributions are of course very pleasing to all of us at Headquarters.

16th Now meeting Treasurer Schaefer in Baltimore to transact financial business of the ASSOCIATION and then to Washington for a meeting of the A.PH.A. Committee on Legislation in the evening. Members of the Committee determined the ASSOCIATION's stand on Federal barbiturate regulation, over-the-counter sales of hydrocortisone ointment, and reemphasized the ASSOCIATION's stand against sales of drugs without professional supervision.

17th At lunch with the members of the Executive Committee of the National Drug Trade Conference at the Washington Hotel, followed by a meeting of the Conference Committee on Uniform State Legislation, headed by Harold Kinner, with considerable clarifying discussion. Also planning the program for the fall meeting of the Drug Trade Conference. All were agreed that the principle involved in the control of distribution of potent and dangerous drugs at state levels should be maintained and that efforts to introduce Federal regulation of intra-state commerce in drugs under the guise of public health requirements should be resisted but that pharmacists should be made aware of their responsibilities.

18th A pleasant luncheon conference with Guillermo Suro of the Pan American Sanitary Bureau on the subject of Pan-American conferences, their organization and procedures. Also a visit from Dr. George D. Beal and Jim Lynch of Idaho, the latter having previously attended meetings of our Committee on Legislation.

23rd At Houston, Tex., meeting with a group of Texas pharmacists who serve as district counselors in contacting a similar group from the Texas Medical Association in an effort to resolve the physician-owned pharmacy problem. Some interesting viewpoints expressed and some hopeful signs detected in the direction of a better understanding between the professions. In the afternoon addressing the 77th Annual Convention of the Texas Pharmaceutical Association on the subject "Professional Interdependence in the Progress of the Healing Arts" as a participant in the Professional Pharmacy Forum. Very grateful to the Southeastern Branch of the A.PH.A. for arranging a special luncheon to meet some 30 members of the Branch and to tell them something of our building program. President James A. Glass and Convention Chairman Arthur Radcliffe were especially active in promoting the interest of A.PH.A. at the special booth and exhibit provided in the A.PH.A. meeting hall.

27th A pleasant visit with Senator Robert Humphreys of Kentucky, who is a practicing pharmacist and who was recently appointed to serve a portion of the unexpired term of the late Alben W. Barkley.

WARNER-CHILCOTT NEWS

Modern Medicine Moves Fast

CAUSE AND CURE DISCOVERED SIMULTANEOUSLY

Warner-Chilcott's New STERISIL Agent of Choice in Vaginitis

MORRIS PLAINS, N.J. — Warner-Chilcott Laboratories has announced release of *Sterisil Vaginal Gel*, a new chemotherapeutic agent for treatment of vaginitis.

Specific Against "Nonspecific"

"Nonspecific" vaginitis was only recently traced to a specific organism—*Hemophilus vaginalis*. Clinical reports now show Sterisil highly effective against this pathogen, as well as against Trichomonas and Monilia.

Opens New Market

A recent survey shows *Hemophilus vaginalis* infections in women are more common than either trichomoniasis or moniliasis. Sterisil promises to open a profitable new market.

High patient acceptance of Sterisil is assured by convenience of appli-

here's your profit picture...

STERISIL® VAGINAL GEL
Brand of hexetidine

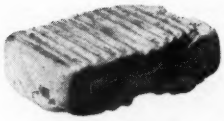
	Your Cost	Fair Trade Minimum	Your Profit
1½ oz. tube with 6 disposable applicators	$2.75	$4.59	$1.84 (40%)

order NOW from your wholesaler!

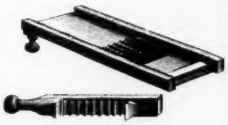
Tools of the Apothecary

6. PILL MACHINES

*by George Griffenhagen**



1. Roman pill making stone, British Museum in London.



2. Earliest of pill machine illustrations (from Diderot, 1763).

When the pill as a separate dosage form came into use in ancient Mesopotamia and Egypt, it offered for the first time a definite dose corresponding with the desired therapeutic action. The Greeks named these little balls of medication "katapotia" (something to be swallowed), and the latinized form "catapotium" appears frequently in medical literature of the period. In Rome the term "pilula" was in use by the first century A.D.; the Roman encyclopedist Pliny used the term in describing a ball-like fruit.

In the previous installment on "Pill Tiles and Spatulas" (July, page 464) it was noted that these tools were employed by the Romans to compound pills. It appears that the Romans also employed the first pill machine. A stone preserved in the British Museum has been described as such an apparatus. The stone (Fig. 1) is an oblong block 8 cm. by 5.2 cm. by 2.3 cm. thick, with ten grooves about 9 mm. wide on one side, and fourteen grooves about 6 mm. wide on the opposite face. The stone appears to be of soft limestone from the Eastern Mediterranean (Cyprus or Rhodes).

The graduated pill divider (Fig. 4a, b), according to Thompson, came into use at the end of the 17th century. It was made of a flat piece of brass or bone with a dentated edge on both sides, by means of which the rolled pill mass could be marked for cutting into pills of the required size. Schelenz observed that the pill divider was invented in Germany, "perhaps by the pharmacist Dieterich in Nürnberg from whom J. Gg. Gmelin at Tübingen in 1715 ordered such an instrument."

Aside from the remarkable possibility of the use of such a device by the ancient Romans, the pill machine for mechanically cutting the pipes from which the individual pills were prepared appears to have been introduced in Frankfurt am Main, Germany, about 1750. The earliest illustration and reference to the pill machine uncovered by this author appears in Diderot's *Recueil de Planches sur les Sciences*, Paris, 1763 (Fig. 2). Antoine Baumé described and illustrated a similar device in the 1769 edition of his *Éléments de Pharmacie* as being made of walnut with iron plates (Fig. 5).

While it is quite possible that a few of these pill machines found their way to America, this author has found absolutely no proof to support the fact that they were used in this country prior to the 19th century. The Louisiana State Museum in New Orleans preserves what may be the earliest extant pill machine used in this country. It appears to be of French design, similar to those manufactured by Menier of Paris (Fig. 3).

On July 10, 1807, W. Lewis obtained a U.S. patent for a "pill-machine"; unfortunately all specifications of the patent were destroyed in a subsequent fire. We can only speculate that perhaps Lewis' "pill-machine" was of substantially the same design as the earlier German and French devices. No other patents for pill machines were granted by the U.S. Patent Office for the next 45 years. As early as the 1814 edition of Coxe's *American Dispensatory*, the pill machine was described, but George W. Carpenter did not include the pill machine in his 1834 "list of articles which should be purchased by a druggist at the outset of his business." In 1844, however, Carpenter described the pill machine as "an indispensable article to every druggist," while Parrish wrote in 1856 that the pill machine "is one of the greatest conveniences in pharmacy."

In 1867, Ferris Bringhurst answered the inquiry, "What is the most eligible form of apparatus . . . for preparing pills?" at the annual A.PH.A. meeting by observing that he was "unable to suggest anything better than the ordinary pill machine consisting of a wooden bed and handle with a corrugated brass cutting plate in each. The style of machine was originally made of wood entirely . . . however, the brass plates are more durable." In 1867 August Wirz of Philadelphia obtained a U.S. Patent for such a pill machine, and in 1872 John Cooper of Philadelphia obtained another U.S. Patent which,

* Acting Curator, Division of Medicine and Public Health, Smithsonian Institution, Washington 25, D. C., and Consultant to the Museum of the AMERICAN PHARMACEUTICAL ASSOCIATION.

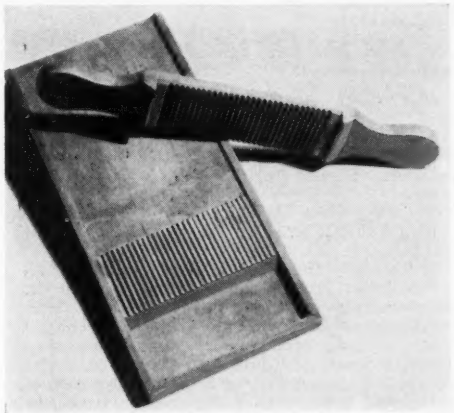
according to the specifications, "consists in combining with the bed . . . a series of movable plates so fitted that one pair may be removed, and another pair be substituted therefor, in order that a different size pill may be made on the same machine" (Fig. 7).

Aside from the standard pill machine, a variety of other forms were marketed such as the Union Pill Machine patented in 1867 (Fig. 6). J. C. Ayer and Company employed a pill machine (patented in 1857) which would turn out "a barrel of pills per day." Ayer's machine was not the first patented device for mass production of pills, for Pond and Morse of Rutland, Vt., received a U.S. patent in 1852 for a "Rotary Pill Machine." Neither was Ayer's patent the last for, according to the *Pharmaceutical Era*, the U.S. Government issued some 150 patents for pill machines from 1857 through March, 1891.

Even though the pill machine may be considered by some as a "relic of the past," there are still three State Boards of Pharmacy (N.J., N.C., and Pa.) which include it in their list of required equipment for the pharmacy. The only model of the pill machine still available today (the Cooper pill machine) is illustrated and described in *Remington's Practice of Pharmacy* (Mack Publishing Co., Easton, Pa., 1956, p. 397).

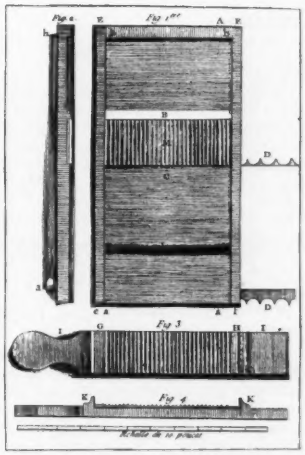
SELECTED BIBLIOGRAPHY

Anonymous, *American Druggist*, **88,** 82(Oct. 1933).
Anonymous, *Pharmaceutical Era*, **6,** 243(Oct. 15, 1891).
Bringhurst, F., *Proc. Amer. Pharm. Assoc.*, **15,** 375(1867).
Cooper, J., U.S. Patent 132,200 (Oct. 15, 1872).
Gerardin, M. E., *Bull. Société d'Histoire Pharm.*, 63(1919).
Kirkby, W., *Chemist and Druggist*, **130,** 679(1939).
Lefebure-Heroguez, J., *Contribution d' l'Histoire de la Spécialité Pharmaceutique; à propos de Quelques Pilules*, Paris, 1952.
Podolsky, E., *American Druggist*, **82,** 34(Nov. 1930).
Schelenz, H., *Geschichte der Pharmazie*, Berlin, 1904.
Thompson, C. J. S., *The Mystery and Art of the Apothecary*, London, 1929.
Urdang, G., *What's New*, Druggist's Ed. (March 1943).
Wirz, A. H., U.S. Patent 69,379 (Oct. 1, 1867).



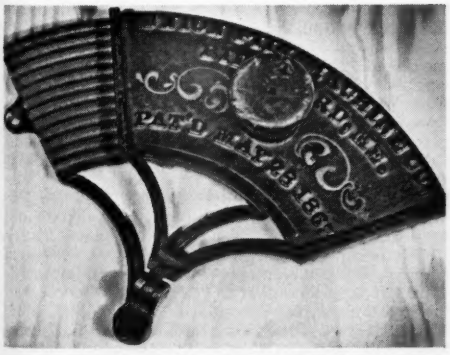
3. Early 19th century all-wood pill machine from Louisiana State Museum, New Orleans.

◀4a. 18th century pill divider, Medical Historical Museum, Copenhagen.

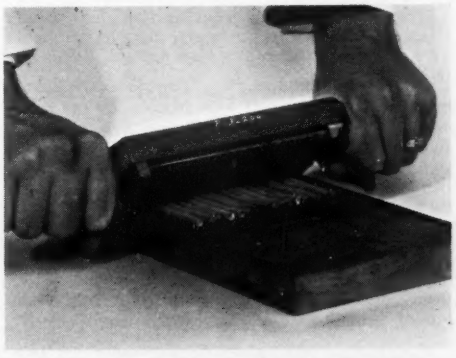


5. An example of the earliest pill machine for mechanically cutting the pipes from which individual pills were prepared is shown in the illustration to the right. This machine, made of walnut and iron plates, is described and illustrated in the 1769 edition of Antoine Baumé's *Élements de Pharmacie.*

◀4b. Another 18th century graduated pill divider, Copenhagen.



6. Union Pill Machine of 1867 in the Museum of the Philadelphia College of Pharmacy and Science.



7. Original patent office model of the Cooper pill machine, 1872. Courtesy Smithsonian Institution.

Legislation

• • • • • • • • • • • • • • • • *from page 513*

Barbiturates—continued

H.R. 11321—A. L. Miller (R, Neb.)—May 21, 1956.

To amend certain laws effecting the control of narcotics in the District of Columbia, and for other purposes. Similar to H.R. 11320. No action was taken.

S. 3901—Price Daniel (D, Tex.)—May 21, 1956.

Identical to H.R. 11320; H.R. 11321. No action was taken.

H.R. 11108—Hale Boggs (D, La.)—May 9, 1956.

Prohibits (1) the unauthorized manufacture, compounding, processing, or possession of any barbiturate or amphetamine, (2) sale, delivery, or other disposition of any unauthorized barbiturate or amphetamine, or (3) failure to prepare or keep or the refusal to permit access to or copying of any record with respect to any unauthorized barbiturate or amphetamine. Contains a definition of "barbiturate" and "amphetamine." The bill was designed to protect the public health by regulating the manufacture, compounding, processing, distribution, and possession of habit forming barbiturate and amphetamine drugs. No action was taken.

Education

H.R. 12237—Carl Elliott (D, Ala.)—July 13, 1956.

Authorizes $800,000 to assist states in establishing committees to consider and report on educational problems beyond the high school level. Passed the House on July 23, 1956. Passed the Senate on July 25, 1956. Signed by the President on July 26, 1956, and became *Public Law 813.*

H.R. 11745—Carl Elliott (D, Ala.)—June 13, 1956. Similar to H.R. 12237. H.R. 11746—Peter Frelinghuysen, Jr. (R, N.J.)—June 13, 1956. Similar to H.R. 12237. *H.R. 11760—Stuyvesant Wainwright (R, N.Y.)—June 13, 1956.* Similar to H.R. 12237. No action taken.

H.R. 9824—Olin E. Teague (D, Tex.)—March 7, 1956.

"War Orphans' Educational Assistance Act of 1956" establishes an educational and special restorative training program for children of servicemen of the U.S. who died as a result of a disability incurred in line of duty during World War II or the Korean Conflict. Passed by the House April 23, 1956, by the Senate on June 11, 1956, and signed by the President on June 29, 1956, to become *P.L. 634.*

H.R. 11710—James A. Haley (D, Fla.)—June 12, 1956.

Provides vocational rehabilitation for certain persons who serve in the active military or naval service of the United States after Jan. 31, 1955. No action taken.

S. 4081—H. Alexander Smith (R, N.J.)—June 19, 1956.

To encourage and assist the states in the establishment of state committees on education beyond the high school. No action taken.

H. J. Res. 654—Harris B. McDowell, Jr. (D, Del.)—June 25, 1956.

To establish a joint congressional committee to be known as the Joint Committee on Expanded College Educational Facilities and Programs in the United States. No action taken.

Foods and Drugs

H.R. 9547—Robert Hale (R, Me.)—Feb. 27, 1956.

Provides for the simplification of the procedures governing the prescribing of regulations under the Federal Food, Drug, and Cosmetic Act. Declares that hearings will not have to be held on an order unless objections are filed specifying with particularity the provisions of the order deemed objectionable. Passed by the House July 16, and by the Senate July 23, 1956.

Medical Care (Public Health)

S. 3958—Lister Hill (D, Ala.)—May 29, 1956.

"Health Amendments Act of 1956" provides through grants and traineeships additional means of stimulating the training of more physicians, engineers, nurses, and other professional public-health personnel, giving primary attention to the training of personnel already employed by the sponsoring state and local health departments. Provides Federal traineeships to individuals who are newly entering the public health field or who have been employed for only a year or two.

Extends for an additional two years (now expires June 30, 1957) the hospital and medical facilities survey and construction program under the Public Health Service Act. Traineeships and grants are also made available for investigations in the field of mental health. The bill passed the House on July 23, 1956, the Senate on July 24, 1956, and was signed by the President on August 2, 1956 (*P.L. 911*).

S. 3076—Lister Hill (D, Ala.) and Mr. Smith of N.J.—Jan. 30, 1956.

"National Morbidity Survey Act" provides for a continuing survey and special studies to secure accurate and current statistical information on the amount, distribution, and effects of illness and disability in the U.S. and the services received for or because of such conditions. Authorizes Surgeon General to make such a survey. This bill was passed by the Senate on March 29, 1956, passed by the House on June 18, 1956, and was signed by the President on July 3, 1956, to become *P.L. 652.*

S. 3246—James E. Murray (D, Mont.)—Feb 21, 1956.

Increases to $5,000,000 (now $2,000,000) the existing authorization for the construction of a building for the National Institute of Dental Research. An amendment reduced the sum to $4,000,000. The House on July 13, 1956, and the Senate on July 19, 1956, passed the amended bill. It was signed by the President to become *P.L 732* on July 20, 1956.

S. 849—Messrs. Hill of Ala. and Styles Bridges (R, N.H.)—Feb. 1, 1955.

"Medical Research Act of 1955." Provides for grants-in-aid to accredited nonprofit universities and schools of medicine, dentistry, and osteopathy, hospitals, laboratories, and other nonprofit institutions, engaged in or competent to engage in research. (Research to be into the causes of and possible cures for crippling and killing diseases, including cancer, heart disease, poliomyelitis, nervous disorders, mental illness, arthritis and rheumatism, blindness, cerebral palsy, and muscular dystrophy.) Establishes in the PHS, the National Council on Medical Research Facilities, to act on applications for grants-in-aid. The House on July 19, 1956, and the Senate on July 20, 1956, passed the bill, and it was signed into law July 30 (*P.L. 835*).

S. 3430—Mr. Hill of Ala.—March 3, 1956.

Creates the National Library of Medicine; authorizes the turning over to the National Library of Medicine the existing Armed Forces Medical Library, its collection, records, and equipment. Through an amendment the library is to be located for administrative purposes in the U.S. Public Health Service of the Department of Health, Education, and Welfare. The bill was passed by the House on July 23, 1956, and by the Senate on July 24, 1956.

Narcotics

H.R. 11619—Mr. Boggs of La.—June 6, 1956.
"Narcotics Control Act of 1956."
This act:

1. Makes it unlawful for any person who is a transferee required to pay the marihuana transfer tax to transport or conceal, or in any manner facilitate the transportation or concealment of, any marihuana acquired or obtained without having paid the prescribed tax.
2. Increases the penalities of violation of laws relating to narcotic drugs and to marihuana; increases penalities under the Narcotic Drugs Import and Export Act for unlawful importation or other actions pursuant thereto.
3. Imposes penalities for sale or other transfer of narcotic drugs or marihuana without a written order on a form to be issued by the Secretary for such purposes.
4. Grants witnesses immunity for violation of certain narcotics laws where the testimony or evidence of such witness is necessary in the public interest.
5. Provides for the issuance of search warrants.
6. Agents of the Bureau of Narcotics of the Department of the Treasury may serve search warrants and arrest warrants, and make arrests without warrant for violations of any law of the U.S. relating to narcotic drugs or marihuana if the violations are committed in the presence of the arresting person.
7. Persons may be penalized for using communication facilities in any violation of narcotic laws.
8. Anyone over the age of 18 years who knowingly supplies any heroin (or any of its salts) to any person who has not attained the age of 18 years, may be fined not more than $20,000, and shall be imprisoned for life, or for not less than ten years, except that the *offender shall suffer death* if the jury in its discretion shall so direct.
9. Part I of title 18 of the United States Code is amended by inserting after chapter 67 a new chapter on Narcotics.

This bill was passed by the House on July 9, 1956, and by the Senate on July 9, 1956. It was signed by the President to become *P.L. 728* on July 18, 1956.

Social Security

H.R. 7225—Jere Cooper (D, Tenn.)—July 11, 1955.
"Social Security Amendments of 1955" provides disability insurance benefits for certain disabled individuals who have attained age 50; widows and surviving dependent mothers will be paid benefits upon reaching age 62; working women and wives may receive reduced benefits at age 62; physicians and osteopaths are excluded in the self-employed category; continues child's insurance benefits for children who are disabled before attaining age 18; tax rates on both employers and employees will be increased by $^1/_4$ of 1%, and on self-employed $^3/_8$ of 1%, effective Jan. 1, 1957. Disability benefits will be payable to permanently and totally disabled persons and a separate trust fund will be established for such payments. Persons convicted of treason, etc., may be denied benefits by a court. Employees of subversive organizations will be excluded from coverage. Federal matching of state payments up to a maximum of $60 will be provided for old-age assistance, aid to the blind, and to the permanently disabled. Matching formula for medical care will be provided on a 50-50 basis. For fiscal year 1957, $5,000,000 dollars will be authorized for grants to states and public nonprofit organizations for research or demonstration projects on prevention and reduction of dependency. Training grants for training public assistance personnel will be authorized. Child welfare programs would be increased from $10,000,000 to $12,000,000 per year.

The bill was passed by the House on July 26, 1956, and by the Senate on July 27, 1956, and signed by the President on August 1, 1956 (*P.L. 880*).

Taxes

H.R. 12152—Thomas B. Curtis (R, Mo.)—July 9, 1956.

Bill to amend the Internal Revenue Code of 1954 to provide for the allowance, as deductions, of contributions to medical research organizations. This bill was passed by the House on July 24, 1956, and the Senate on July 26, 1956.

Water Pollution

S. 890—Edward Martin (R, Pa.)—Feb. 1, 1955.
"Water Pollution Control Act Amendments of 1955" extend and strengthen the Water Pollution Control Act of 1948, continue to vest in the states the primary responsibility for water pollution control, with the Federal effort directed to the role of research, professional consultation, and control over interstate pollution problems. This bill was passed by the House and Senate on June 27, 1956, and was signed by the President on July 10, 1956, to become *P.L. 660*.

W.H.O.

S. J. Res. 183—Hubert H. Humphrey (D, Minn.)—June 26, 1956.

Joint resolution authorizing $400,000 for the United States to extend an invitation to the World Health Organization to hold the 11th World Health Assembly in the U.S. in 1958. This bill was passed by the Senate on July 20, 1956, and by the House on July 23, 1956, in lieu of House Joint Resolution 659. It was signed into law July 30, 1956 (*P.L. 832*).

Meeting of Committee on Legislation

The Committee of Legislation of the AMERICAN PHARMACEUTICAL ASSOCIATION met at the Hotel Washington, Washington, D.C., the evening of July 16. Members of the committee present were: S. E. Armsworth, Joseph Cohen, John E. Donaldson, Dr. Robert P. Fischelis, James J. Lynch, Wilbur E. Powers, and Dr. Hugo H. Schaefer. Present by invitation were Dr. Eric W. Martin and Charles C. Rabe.

Current national legislation was considered and included the Dangerous Drug Control Act for the District of Columbia (H.R. 11320), the Robinson-Patman Law (H.R. 1840, H.R. 11 and S. 11), Social Security Benefits (H.R. 7225), the Boggs bill concerning barbiturate and amphetamine control (H.R. 11108), and appropriation bills concerning A.PH.A. property. Food and Drug regulations bearing on over-the-counter status of cortisone ointment and state legislation of N.Y. and N.J. dealing with proprietary medicine definitions and the self-service regulations legislation of Minnesota, were also considered.

Dr. Fischelis, Secretary of the A.PH.A., was empowered by the Committee to act on certain of these measures. For example, the A.PH.A. filed a brief against over-the-counter sale of cortisone ointment on August 15, 1956, when it came up for hearing. The committee also unanimously agreed that all drugs should be sold only in drug stores and pharmacies where competent professional supervision of their distribution is available.

FDA Criminal Actions

Seizures of allegedly violative foods, drugs, and devices during May by the FDA resulted in more than 50 tons of merchandise being removed from the market because of potential hazards to health. A large proportion consisted of vegetables containing excess pesticidal residues, including approximately 80,000 ten-ounce packages of frozen spinach which contained DDT above permitted tolerances. Manufacturers recalled from sale eight different products found defective after shipment. In some cases the recalls were initiated by the manufacturers when they discovered the defects. Others were requested by FDA after inspections and analyses of samples. Drug products recalled by manufacturers included vitamin and antibiotic products whose potency had deteriorated, an antihistamine product mislabeled as to potency, and an eyewash containing live yeasts.

Over-the-Counter Sales

Denver, Colo.—Selling and refilling prescriptions for amphetamine, cortisone acetate, and thyroid without physicians' authorizations. One employee fined $100; another fined $200, $100 of which was suspended; each defendant placed on probation for 6 months.

Chicago, Ill.—Selling penicillin and sulfonamides without physicians' prescriptions. Firm fined $125; two individuals fined $100 and $250 each and court costs of $42.20.

Clinton, La.—Selling barbiturates and sulfonamides without physicians' prescriptions. Charges dismissed.

Greenville, Mich.—Selling amphetamine, barbiturates, hormones, and sulfonamides without physicians' prescriptions. Fined $125.

Greenville, Mich.—Selling amphetamine, hormones, penicillin, and sulfonamides without physicians' prescriptions. Firm fined $125; two individuals fined $50 and $75, respectively.

Greenville, Mich.—Selling amphetamine, hormones, and sulfonamides without physicians' prescriptions. Firm fined $125; owner fined $50; employee fined $75.

Greenville, Mich.—Selling amphetamine, barbiturates, hormones, and sulfonamides without physicians' prescriptions. Owner fined $150; employee fined $75.

Greenville, Mich.—Selling amphetamine, barbiturates, hormones, penicillin, and sulfonamides without physicians' prescriptions. Fined $150.

Kansas City, Mo.—Refilling prescriptions for barbiturates and Neopenzine without physicians' authorizations. Firm fined $600; charges against owner dismissed; two employees fined $200 each.

Newton, N.J.—Selling and refilling prescriptions for amphetamine, barbiturates, and Butazolidin without physicians' authorizations. Fined $300.

Passaic, N.J.—Selling and refilling prescriptions for amphetamine, barbiturates, and Butazolidin without physicians' authorizations. Fined $300, given a 1 year suspended jail sentence, and placed on probation for 1 year.

Mohegan Lake, N.Y.—Selling and refilling prescriptions for amphetamine and sulfonamides without physicians' authorizations. Fined $1,000.

New York, N.Y.—Selling amphetamine, penicillin, and sulfonamides without physicians' prescriptions. Two owners fined $300 and $450, respectively.

Misbranded Drugs

Mrs. Mary Piatek, t/a Father Francis' Herbs, Chicago, Ill.—Father Francis' Medicinal Herb Tea Formulas and Aromatic Bath Herbs Formula misbranded by false and misleading thereapeutic statements in accompanying labeling that the drugs were adequate and effective treatments for indigestion; hyperacidity; poisonous conditions of the intestines; colic; nausea; bloating; torpidity; headache; insomnia; kidney, liver, and bladder troubles; impaired metabolism and health; diabetes; rheumatism; arthritis; nervousness; sleeplessness; backache; swelling of the ankles; puffiness under the eyes; loss of energy and appetite; lowered resistance against diseases; bronchitis; sore throat; fever; preventing colds; gout; neuritis; sciatica; lumbago; muscular chill; dizziness; heart trouble; palpitations of the heart; breathlessness; overweight; impaired circulation; and impure intestinal tract and skin. Fined $250, $200 of which was suspended, and placed on probation for 5 years.

FDA Anniversary • • • • • • *from page 507*

Commemorative Addresses

During the afternoon session presided over by Charles Wesley Dunn, President of the Food Law Institute, tributes were paid to the commemorated laws by members of the food industry (Roy H. Walters, Vice President of General Foods Corporation; Roy G. Lucks, President, California Packing Corporation; G. Cullen Thomas, Vice President, General Mills, Inc., and George Garnatz, President, Institute of Food Technologists), the meat industry (Mr. Porter Jarvis, President, Swift & Company), the drug industry (H. J. Loynd, President, Parke, Davis & Company; James Hill, Chairman of the Board, Sterling Drug, Inc.; and Dr. Robert L. Swain, Chairman of the Board of Trustees, United States Pharmacopoeial Convention), the food and drug chemical industry (John T. Connor, President, Merck & Co., Inc.), and the cosmetic industry (H. Gregory Thomas, President, Chanel).

In the Grand Ballroom of the Mayflower Hotel the evening national and international session was opened with introductory music by the United States Air Force Headquarters Command Band. Dinner music was provided by the Mayflower Concert Orchestra, and the Hon. Simon E. Sobeloff, Solicitor General of the United States, was toastmaster for the occasion. Following the invocation by Dr. Frederick Brown Harris, Chaplain of the United States Senate, the national anthems of both the United States and Canada were played. The Hon. Marion B. Folsom, Secretary of Health, Education, and Welfare, and Dr. J. Fred G. Robertson, of Canada, presented the final commemorative addresses.

Pharmaceutical Brainstorming

Columbia University has introduced into pharmaceutical circles a new technique variously known as "imagineering," "thought free-wheeling," "brainstorming," etc. The technique, which is the brainchild of Alec Osborn of Batten, Barton, Durstine and Osborn, has been used in industry for several years.

Three ground rules are in effect at such group-thinking meetings: (1) individual ideas are expressed briefly without supporting arguments, (2) the judicial attitude is avoided, and (3) no negative comments are allowed. This procedure allows one idea to spark others in the minds of the participants, and as the ideas begin to flow and "bounce" from one mind to another, the creative thinking process gathers momentum.

Only the bare ideas are concisely presented and all excess verbage is avoided. Frequently a person is assigned to a blackboard where he writes down ideas for all to see; this facilitates the correct presentation and interpretation of the idea. A stenographer is also often in attendance for recording every thought expressed aloud so that no "gems of wisdom" are lost.

Columbia University has been brainstorming the question, "What will be the functions of the pharmacist in 1965 as a member of the health team?" The year 1965 was chosen as symbolic of the future and also represents the year when the first students of the five year program for colleges of pharmacy will graduate.

Five sessions were held at the Columbia University Club, New York City. The Chairman, Leo Roon, Vice-President of the Columbia University College of Pharmacy Board of Trustees, planned the meetings to obtain a cross-section of persons vitally interested in pharmacy. Hundreds of ideas were contributed at these sessions, moderated by Mr. Roon and Dr. Robert L. Swain.

The participating groups and the membership of each were as follows:

Retail Pharmacist Panel—Calvin Berger, New York City; Mrs. Carroll Dayharsh, Teaneck, N.J.; Samuel A. Dreyer, Pelham, N.Y.; Ben Fleishman, New York City; Joseph Greenberg, New York City; Miss Anne E. Grosso, New York City; James Hill, Niagara Falls, N.Y.; David Mazlish, Jersey City, N.J.; R. Raymond Ricciardi, Jersey City, N.J.; and Arthur West, Madison, N. J.

Retail Pharmacist Panel—Fred P. Beretta, Berkeley, Calif.; Robert L. Brusenhan, San Antonio, Tex.; Wilfred Chagnon, Newton, Mass.; Dr. Frederick D. Lascoff, New York City; David S. Lyman, Wilmette, Ill.; Frank W. Moudry, St. Paul, Minn.; Charles R. Seward, Pasadena, Calif.; Tyre Watson, Decatur, Ga.; John S. Watkins, Kansas City, Mo.; LeRoy A. Weidle, St. Louis, Mo.

Physicians' Panel—Dr. Morris S. Bender, Dr. Richard Gordon, Dr. David Graubard, Dr. R. Sterling Mueller, Dr. Maximilian Nemser, Dr. Attilio Robertiello, Dr. Robert Schleussner, Dr. William B. Sherman, and Dr. Fredrick F. Yonkman.

Editors of Pharmacy Publications and **Secretaries of Pharmaceutical Associations**—David Beiles, *New York State Pharmacist;* Nicholas Gesoalde, New York State Pharmaceutical Association; Dr. Madeline O. Holland, *American Professional Pharmacist;* Louis E. Kazin, *Drug Topics;* George Klinger, *Drug Topics;* Miss Fay Kornreich, Pharmaceutical Council of Greater New York; Dr. Eric W. Martin, *Practical Pharmacy Edition,* J.A.PH.A.,; Dan Rennick, *The American Druggist;* Ray C. Schlotterer, Federal Wholesale Druggists' Association; Dr. Robert L. Swain, *Drug Topics;* James S. Talbott, *Mid-Atlantic Apothecary;* Moe Weiss, Consolidated Brooklyn Retail Pharmacists, Inc.

Industry Panel—Dr. Rudolph Blythe, Smith, Kline & French Laboratories; Jack Cooper, Ciba Pharmaceutical Products, Inc.; Joseph Burmidis, Charles Pfizer & Co., Inc.; Dr. Rudolf O. Hauck, Bilhuber-Knoll Corp; Dr. John N. McDonnell, Schering Corp.; Joseph R. Miale, Walker Laboratories, Inc.; Carl K. Raiser, Smith, Kline & French Laboratories; Dr. Clarence W. Sondern, Warner-Chilcott Laboratories; R. L. Thatcher, E. R. Squibb & Sons, Div. Mathieson Chemical Corp.; Dr. R. G. Denkewalter, Merck & Co., Inc.; F. P. Wall, E. R. Squibb & Sons, Div. Mathieson Chemical Corp.; H. W. McNey Lederle Laboratories, Div. American Cyanamid Co., Dr. Paul Wermer, Warner-Lambert Pharmaceutical Co., Inc.; and George Guess Charles Pfizer & Co., Inc.

An evaluation committee consisting of Dr. Robert L. Swain, Editor, *Drug Topics,* Chairman; Leo Roon and Dr. Frederick D. Lascoff, Board of Trustees, Columbia University College of Pharmacy; Dr. Frederick F. Yonkman and Jack Cooper, Ciba Pharmaceutical Products, Inc.; Dr. Rudolf O. Hauck, Bilhuber-Knoll Corp.; Dr. Paul Wermer, Warner-Lambert Pharmaceutical Co., Inc.; and Dean E. Emerson Leuallen and Joseph L. Mandell, Director, Office of Development of the College, have been appointed to evaluate the results of these "brainstorming" sessions, and their findings will be reported at a later date.

Civil Defense . . . . . *from page 527*

The states send key people in order to make instructors of them so they can go back and start a training program in their state.

Stockpiles of Supplies

The Federal medical stockpile, though it is large and increasing each year, would be impossible to locate throughout the country so that it would be immediately available to every place that is likely to be attacked. That is one reason for the Federal matching fund to encourage the states and cities to buy the supplies they would need initially in the first 8 to 10 hours; FCDA officials are certain it would be perhaps that long before the Federal stockpile of supplies could reach them from the Federal warehouses.

As of now, there are 40 Federal warehouses scattered throughout the country, all on 24 hour alert, with plans to get out the supplies. About one-third of the supplies on hand are in units, *e.g.*, a unitized group of packages that is enough to take care of 1,000 casualties. A unitized package list is ready for distribution. These units, which are palletized, will serve to keep a first aid station in operation for another 24 hours. There is a replacement list for a hospital that will enable that hospital to take care of 200 bed patients for a week. Also available are the bulk 10,000 casualty units. These units are each large enough to take care of a group of 10,000 casualties and might have to be shifted from one part of the country to another.

Responsibilities of Pharmacists

Civil Defense is not only a person's responsibility as a private citizen, it is also a special responsibility for those people who by their training or experience have a special contribution to make to Civil Defense. Pharmacists certainly fall within that special category along with physicians, dentists, nurses, hospital administrators, and the other allied health professions.

As first aiders, pharmacists not only can render first aid but they can perform a very important service for the nation in acting as teachers of first aid. A pharmacist is included in the recommended pattern or table of organization for a standard first aid station. He is an important member of the team. There are only 9 professional people in the first aid station organization out of a total of 232, and the pharmacist is one of those nine. His chief role, of course, will be the handling of the medical supplies, although he no doubt would be in a position to render a lot of emergency medical care, too.

Pharmacists also have sufficient background and training in the physical sciences to become not only good radiological monitors but also radiological monitor instructors.

Many pharmacists are already active in Civil Defense. In many places the retail pharmacies have been designated as first aid stations for Civil Defense purposes. Memphis, Tenn., quite a long time ago designated each one of their retail pharmacies as an emergency first aid station. They have even furnished official Civil Defense emblems to put on the windows and have appointed the pharmacists in the pharmacies as first aid station officers.

Many of the states and cities have called on the pharmacists to assist them in inventorying what might be available, either locally or in the state. Assisting the local, state, or regional Civil Defense medical or health chief in planning for the procurement of supplies, determining what is immediately available, what the expected requirement might be and, therefore, what the deficit is, are certainly roles in which the pharmacist can make a great contribution.

The Role of the A.Ph.A.

The A.PH.A. already has a Committee on National Defense. If at all possible, by whatever mechanism exists in its Constitution, the A.PH.A. should urge each State Association to set up a similar Committee on Civil Defense, and also urge local units or branches to have Committees on Civil Defense, on disaster planning, on national defense, or whatever title is selected.

The American Hospital Association calls theirs the Committee on Disaster Planning. The American Medical Association calls theirs the Council on National Defense and has a Subcommittee on Civil Defense.

Pharmacists should seek representation on state and local Civil Defense health services councils which are composed of a representative of the State Medical Society, usually the executive secretary or a representative of the State Hospital Association, of the State Nurses' Association, of the State Dental Association, of the State Veterinary Association, and every one of the professional groups that are involved in the Civil Defense health and medical services, as well as the state health officer. Pharmacy should be represented on each one of these state and local councils.

FCDA would also like to see the State Pharmaceutical Associations appoint a representative to what is called the Regional Health Services Advisory Committee. FCDA has divided the country into 7 regions. There is a medical officer in each regional office and he has an advisory committee composed of the representatives of all the professional associations just mentioned, one from each of the states within his region. These committees meet twice a year, but through the channel the regional medical officer can keep the particular associations informed as to what is going on and can seek their advice and their cooperation and approval.

℞ information service

Members of the American Pharmaceutical Association are invited to submit their professional problems to The Journal, 2215 Constitution Ave., N. W., Washington 7, D. C. Inquiries should include all pertinent details.

Iron-Dextran Complex

Can you supply information about an iron-dextran complex used in the treatment of iron deficiency anemias?—Dr. McC., District of Columbia.

A product named Imferon, for intramuscular injection, is manufactured by Bengers Laboratories, Ltd., Holmes Chapel, Cheshire, England. Reference to the use of this product in clinical trials in England appeared in *British Med. J.*, 700(Sept. 17, 1955), and in *A.M.A. Arch. Internal Med.*, **96,** 731 (Dec. 1955). Lakeside Laboratories, Inc., has recently announced a reciprocal marketing arrangement with Benger Laboratories, Ltd., that will enable Lakeside to introduce Imferon in the U.S.

Monosodium Glutamate Injection

We have tried to prepare monosodium glutamate injection, but we seemed to have difficulty in obtaining a stable product. Is a commercial product available?—B. Y., Maryland.

Information on the preparation of monosodium glutamate injection was published in THIS JOURNAL, **17,** 411(June 1956). We have been informed that *Sherman Laboratories* is now supplying, without charge to qualified investigators, an ampuled form of monosodium glutamate suitable for intravenous administration. The sterile, pyrogen-free product, designated SL-9002, Mono-Sodium Glutamate, 20% w/v, and packaged in 20-cc. ampuls, is not commercially available at this time.

Scalp Ointment

Can you give a formula for a nontoxic, watermiscible, easily applied ointment base for a scalp preparation?—G. D., Pennsylvania.

The following formula might be suitable:

Polyethylene glycol 400 monostearate	26
Polyethylene glycol 400	37
Polyethylene glycol 4000	37

Mix and melt the glycols at about 65° C., then stir while cooling to about 40° C. Heat the polyethylene glycol 400 monostearate to 40° C., add it to the glycol mixture with stirring until uniform.

Although all ingredients in this base are nonionic, it would be prudent to prepare a small amount to be tested with the ingredients you wish to add. Other formulas for washable ointment bases are given in a group of articles in THIS JOURNAL, **15,** 32, 36, 39 (Jan. 1954). You might also refer to Dr. R. C. V. Robinson's "Criteria for Selection of Ointment Bases," in THIS JOURNAL, 16, 537(Sept. 1955).

Sterile Powder Filling Unit

Do you have any information about a mechanical aid for filling small containers with a bulk sterile powder?—J. G., Maryland.

A hand-operated machine which can fill 5 Gm. of sterile sulfa powder into each of 100 vials in 15 minutes is used in the Pharmaceutical Dept., St. Thomas's Hospital, London, and is described by J. Coles in *Pharm. J.*, **176,** 319(June 2, 1956) as follows:

The apparatus consists of a highly polished, stainless steel funnel feeding into a segmented rotary drum which may be rotated by radial arms. The segments are of a volume that accommodates the weight of material required to be filled into each of the final containers. Powder from the funnel flows into each segment, as, during rotation, it passes the drum-chamber inlet. As each filled segment passes the outlet, the powder falls into the final container. A "click stop" is fitted to indicate the position of each segment. Variation in weight between the quantities delivered in a run is very slight, and although a vibrator attached to the hopper would remove variations, this addition is not felt to be necessary for ordinary use. The parts of the apparatus, except for the stainless steel funnel and lid, were made of scrap brass which was subsequently plated. It may be readily taken apart for cleaning, and can be sterilized as assembled for use by dry heat at 150° for an hour. To employ the machine for powders of widely differing densities requires a separate drum for each kind of powder. (The apparatus is illustrated.)

STRONG—SAFE—SECURE

We exist to serve only you—

Protecting your home as well as store

Also available to Employed Pharmacists

Consult Our Agent

Progress in Medicine

ACTH and Cortisone in Pemphigus

Administration of ACTH and cortisone to patients suffering from a type of the skin disease pemphigus that can be fatal has reduced the death rate from 56% (1945–1950) to 20% (1955–1956). This application of the drugs was reported by two physicians to the May meeting of the Illinois State Medical Society at Chicago.

Boric Acid in Dermatologic Practice

Results of a survey among U.S. dermatologists with respect to the frequency of use, indications for, and efficacy of boric acid in solution and ointments are reported by Dr. R. S. Fisher in *A.M.A. Arch. Dermatol.*, **73,** 336(April 1956). More than 65% of those certified by the American Board of Dermatology and Syphilology answered Dr. Fisher's questionnaire. Of these, 94% used boric acid, 71% indicating frequent use. The data indicate a widely held clinical impression that boric acid exerts a useful bacteriostatic effect in both wet preparations and ointments.

Hydrocortisone Ointment Bases

Tests of patient acceptance of 1% hydrocortisone ointments utilizing 11 different bases showed poorest performance with the greasiest (petrolatum) and the "driest" type of base. The report by Drs. F. Kalz and A. Scott in *A.M.A. Arch. Dermatol.*, **73,** 355(1956), shows that best general results were obtained by the following bases:

Base No. 2

Isopropyl myristate	5
Methyl stearate	5
Diglycol stearate	20
Liquid petrolatum 85%	50
Ceresin 65%	10
Yellow wax	5
Cetyl alcohol	5

Base No. 3

Cetyl-stearyl alcohol	27
Sodium lauryl sulfate	3
White petrolatum	70

Base No. 4

Base 2 plus lecithin 1.5% and water 8%

Base No. 6

Base 3 plus water 20%

Base No. 7

Cetyl alcohol	11.70
Waxes	5.18
Propanediol	7.80
Sodium lauryl sulfate	1.56
Liquid paraffin	14.08
Water	59.68

Bases considered almost as good were:

Base No. 5

Glycerin	24.5
Cetyl alcohol	14.7
Sesame oil	19.8
Polyoxyethylene monostearate (Myrj 52)	5.0
Glyceryl monostearate	5.0
Water pres	30.0

Base No. 8

Glyceryl monostearate	10.0
Glycerin	25.0
Veegum HV	2.0
Water pres	62.0

The physicians found that the differences in therapeutic actions of the hydrocortisone in different vehicles is not determined primarily by any specific influence of the bases on the penetration of the hormone, but rather on the compatibility of the base with the skin disease and its different locations on the body. They state that no all-purpose best base could be selected.

Iodine-PVP Solution

Combination of iodine with polyvinylpyrrolidone (PVP) forms a product from which iodine is released slowly, thus reducing its irritating caustic and toxic properties while retaining its germicidal activity. Investigations by Drs. H. A. Shelanski and M. V. Shelanski, and others discussed in a recent issue of *Bull. Am. Soc. Hospital Pharm.*, **13,** 226(1956) showed PVP-iodine to be effective against bacterial and fungus infections of the skin. Comparative LD_{50} tests indicate that PVP-iodine is one-fourth to one-ninth as toxic as iodine tincture when ingested orally.

Neo-Zinc Oxide Hyperfine

The use of various forms of zinc oxide in dermatologic preparations introduces a preliminary report on the use of a chemically pure, colored form of zinc oxide (Neo-Zinc Oxide Hyperfine, Merck) by B. Appel, L. M. Ohmart, and R. F. Sterner in *A.M.A. Arch. Dermatol.*, **73,** 318(April 1956). The new microcrystalline, orange-pink zinc oxide offers as advantages over white zinc oxide, its color and skin covering properties. Neither form is bacteriostatic.

Prednisone in Treatment of Dermatoses

Treatment of 212 patients with various dermatoses by oral administration of prednisone (initially 40 mg., maintenance 40–15 mg. daily) gave results that indicated the drug is four to five times more potent than cortisone or hydrocortisone, although the initial therapeutic response in cases with chronic dermatoses was slower. Side-effects were minimal, with no evidence of salt retention, hypertension, sodium depletion, peptic ulcers, or glycosuria. Moon facies, however, developed more rapidly and more frequently than with cortisone or hydrocortisone. Other side-effects included increased appetite with weight gain, gastric distress, menstrual disturbance, acne, hot flushes, increased sweating, headache, vertigo, weakness, depression, and insomnia. Most disappeared with reduction from initial to maintenance dosage. The report by Drs. C. R. Rein and E. L. Bodian appeared in *A.M.A. Arch. Dermatol.*, **73,** 378(April 1956).

Formaldehyde in Tooth Paste

A tooth paste advertised to dentists as "a new efficient remedy for teeth sensitive to *heat* and *cold*," and which is essentially a calcium carbonate and magnesium carbonate-type dentifrice with sodium and potassium salts and 1.4% formalin has been classified by the A.D.A. Council on Dental Therapeutics in Group D (*J.A.D.A.*, **52**. 738, June 1956). Dentifrices for which remineralizing claims are made have been placed in Group D, which means that they are unacceptable because of their demon-

strated inability to meet the Council standards. The Council has not recognized the usefulness of formaldehyde in a tooth paste or in a solution so dilute as 0.6%, although it has recognized the very limited usefuless of formalin (about 37% formaldehyde) in the treatment of hypersensitive dentin.

Inositol a Growth Factor

Inositol can replace human blood serum in media in which human cells can be propagated, according to a report by Dr. Harry Eagle, *et al.*, in the May 11 issue of *Science*. The investigators found that meso-inositol together with 13 amino acids, seven vitamins, five salts, and sugar permitted growth of 16 cell lines including cells from human cancers, normal and cancerous bone marrow, liver, eye conjunctiva, embryo intestines, and mouse cancer. The studies are believed to establish the vitamin nature of inositol.

Isoniazid Ineffective in Multiple Sclerosis

Results of a two-year trial of isoniazid for treatment of multiple sclerosis, covering 183 patients for three months, 155 for six months, 123 for nine months, and 80 for twelve months, indicate that there was no beneficial effect on the course of multiple sclerosis. The report by Dr. B. Nagler to the American Neurological Association meeting in June at Atlantic City represented a collaborative effort by physicians at 11 VA hospitals. The study was made after earlier reports were favorable in two groups and negative in three others.

Radioactive Iodine Diagnostic Aid in Digestive Tract Disorders

Gastrointestinal disorders (cancer or inflammation of the pancreas, diseases of the small intestine, nutritional abnormalities after operations for duodenal or stomach ulcers) are found by feeding the patient peanut oil containing glyceryl trioleate tagged with I^{131} and determining radioactivity in blood samples taken four to six hours later. Eliminated material is studied over a 48-hour period. Normal patients show high radioactive levels in the blood and low levels in waste materials. The test was reported at the June meeting of A.M.A. at Chicago by Dr. G. J. Baylin, *et al.*

Timed-Disintegration Capsules—Roentgenographic Study

Capsules containing barium sulfate coated for disintegration after 2, 4, and 6 hours according to a modified U.S.P. method of testing, were found to disintegrate in the gastrointestinal tract in 2–4, 4–6, and 6–10 hours, respectively. The *in vivo* tests were reported by T. M. Feinblatt and E. A. Ferguson, Jr., in *New Engl. J. Med.*, **254**, 940(1956).

Urosulfin in Urinary Tract Infection

Cystitis in 86 female patients was treated by oral administration of Urosulfin (sulfamethylthiadiazole, 250 mg. and 2,6-diamino-3-phenylazopyridine HCl, 50 mg. per tablet) with favorable results, according to a report in *J.A.M.A.*, **160**, 542(Feb. 18, 1956). The antibacterial anesthetic combination gave cures in 48 cases and improvement in 22. Pain and discomfort were relieved and no toxic effects were noted in 117 patients treated with the drug.

REDUCING DIET

Dieters Should Be Cautioned

The intense interest exhibited by American citizens in reducing diets was demonstrated recently when an article on dieting[1] appeared in the July issue of a magazine for women; the issue was soon sold out on most news stands because of the great demand for the article. In a relatively short period of time, regardless of the hazards always inherent in dieting to reduce, large numbers of lay persons were using the formula published, as evidenced by the fact that supplies of packaged dextrose, one of the ingredients, were exhausted in many pharmacies.

During the course of metabolic investigations undertaken in 1953, a group of patients at the Hospital of the Rockefeller Institute for Medical Research were given a special low protein fluid diet under the supervision of Dr. Vincent P. Dole and his associates. This liquid formula was utilized as a research technique for conducting accurate metabolic investigations after it was shown that the diet was a practical means of evaluating the metabolic processes of both inpatients and outpatients. Twenty ounces of the fluid formula, the amount consumed daily by the average patient on an obesity reducing diet, contains the well-defined sum of 900 calories.

The formula, consisting of sufficient dextrose, evaporated milk, corn oil, and water to provide carbohydrate, protein, and fat in approximately the same proportions as human milk, must be supplemented by a daily intake of a multiple vitamin preparation when employed by medical research workers. In some instances it is desirable to use in addition a bulk-forming colloid such as methylcellulose. The patient is permitted to drink as much water as is desired.

Such diets should, of course, be taken only with the approval and under the supervision of a physician. There are always hazards inherent in regimens where specified diets rather than natural diversified foods are consumed, particularly when diets are providing energy quotas below normal maintenance levels. Metabolic control often leads to major alterations in the biochemistry of the body to which psychological and physiological adjustments may not always be possible. Pharmacists must always be on the alert to provide professional guidance to their clients in such matters and to advise against the improper use of foods and drugs.

---

[1] "Fabulous Formula Diet" by Dawn Crowell Norman' *Ladies' Home Journal* (July 1956).

Hospital Survey in Michigan

A survey of hospitals with less than 100 beds will be made in Michigan by the University of Michigan College of Pharmacy beginning late this fall, and lasting one year, according to Dean Tom D. Rowe. The survey, to cost $10,000, will be part of a program of "Research and Service in the Utilization of Human Resources" for which $300,000 was recently appropriated by the Michigan legislature. According to Dean Rowe, the survey will determine:

1. The elements required to render necessary pharmaceutical services and to establish the existing facts concerning such services.
2. The possible role of established retail pharmacies in providing services to small hospitals.
3. How to provide the best pharmaceutical services most efficiently and at the most reasonable cost and how to stimulate Institutes, or short refresher courses, for pharmacists and other hospital personnel concerned with pharmacy services.

The survey will be under the direction of Dr. Alex Berman, who was recently made Assistant Professor at the College of Pharmacy and who will teach courses in history and hospital pharmacy administration to undergraduate students. He was formerly secretary of the American Institute of History of Pharmacy at the University of Wisconsin.

In describing the survey, Dean Rowe characterized pharmacy as one of the most vital services in the modern hospital and noted that such a study should serve to improve clinical administrative use of pharmacy services and to effect practical applications of advances in medicine. He also pointed out that there is a serious need for studies on levels of service, operations, drug costs, personnel, equipment, layout, and space requirements in hospital pharmacies.

Patients' Medical Records

The Judicial Council of the American Medical Association has recently published opinions in reply to two questions which are frequently asked.* These are condensed below.

Question No. 1—Am I ethically obliged to give a patient a copy of my records?

Opinion—The Council does not believe that a physician is required to give to the patient a copy of the latter's technical, personal, and often informal medical records which are meaningless to the patient and are valuable only to the physician and perhaps to a succeeding physician. The patient, however, is entitled to know the nature of the illness and the general course or regimen of therapy employed by his physician within the limits dictated by the nature of the illness and the character of the patient.

Question No. 2—A colleague has asked me to send him my records concerning a former patient of mine who presently is under his care. Am I obligated to send him these records?

Opinion—The interest of the patient is paramount in the practice of medicine, and everything that can reasonably and lawfully be done to serve that interest must be done by all physicians who have served or are serving the patient. A physician should promptly make his records available to the physician currently attending the patient, assuming, of course, that proper authorization for the use of these records has been granted by the patient. However, the attending physician should not demand or expect more information from the former physician than is necessary to give the patient adequate care in his present illness.

Personal Health Log Book

Dr. Carl A. Dragstedt, Professor of Pharmacology at Northwestern University Medical School, has suggested that everyone in this country have a personal health log. In a suitable booklet kept in the permanent possession of everyone would be recorded the important aspects of his health record, including items from his family history, data on vaccinations and inoculations, diseases contracted, operations, blood pressure, blood cell counts, blood type, and laboratory findings of various kinds. Whenever the individual consulted a physician or entered a hospital he could take along his health log and save considerable time now consumed in recording his historical medical data. In addition, the use of such a book would provide more accurate and reliable information than the memory of the patient.

Urine Sugar Tests

A Warning[1]

The desirability of constant professional supervision of patients was demonstrated recently in connection with a diabetic who bought, without a physician's prescription, Lilly Tes-Tape, a new unit to use in testing urine. In contrast to Clinitest of Ames, which shows a blue color for negative sugar reaction, the Tes-Tape gives a blue color in the presence of considerable sugar. The diabetic was admitted to Mount Alto Veterans Administration Hospital, Washington, D.C., as a result of misinterpreting the test. Even further confusion has been introduced by the Ames Clinistix, which turn blue in the presence of glucose in contrast to the Ames Clinitest tablets where the blue color indicates the absence of glucose.

Pharmacists supplying these test units should be careful to instruct the patient properly so that the tests may be interpreted correctly.

No drugs or other items used for the prevention and treatment of disease should ever be distributed by any person who is not fully qualified to give proper advice on their use or application.

* *J.A.M.A.*, **161**, 542(1956).

[1] *J.A.M.A.*, **161** 1002(July 7, 1956).

MEMBERSHIP RECORDS

THE ASSOCIATION EXTENDS A CORDIAL WELCOME TO THE FOLLOWING MEN AND WOMEN WHO WERE ACCEPTED FOR ACTIVE MEMBERSHIP DURING THE MONTH PRECEDING PREPARATION OF THIS ISSUE.

ALABAMA
Sieber, David J., Spring Hill

CALIFORNIA
Asche, Clifton A., Coronado
Cole, Norton, Jr., San Diego
Cox, John L., San Diego
Korander, Nivous S., San Diego
Van Dusen, Richard B., La Mesa
Villani, Joseph R., El Cajon

CONNECTICUT
Burleson, Lester W., Sr., Middletown

DELAWARE
Bartlett, William E., Smyrna

FLORIDA
Ford, Allen A., Jacksonville
Irvin, Robert J., DeFuniak Springs
Lucas, Elwood, Sanford
Mullis, Charles W., Jacksonville Beach
Ossi, George, Jacksonville
Pfrogner, Louis, Fort Lauderdale
Surface, Arthur L., Coral Gables

IDAHO
Kuka, Loyde M., Twin Falls

ILLINOIS
Burns, Frederick W., Elgin
Chazdon, Sheldon Z., Chicago
Featherston, Lauren R., Peoria
Fine, Morris K., Chicago
Liberson, William, Chicago

INDIANA
Mercer, Neil H., Evansville
Thompson, Jack R., Liberty

IOWA
Mote, Winnifred K., Des Moines

KANSAS
Grier, Paul T., Topeka

KENTUCKY
Henderson, Charles W., Louisville

LOUISIANA
Orihuela, Miguel S., New Orleans

MARYLAND
DiGristine, Mary R., Baltimore

MASSACHUSETTS
Blumsack, Nathan, Somerville
Goulkin, Theodore J., Chelsea
Martinson, Henry O., West Concord

MICHIGAN
Arnes, Wilfred J., Flint
King-Scott, Seaford H., Mount Clemens
Leeser, Robert L., Dearborn
McCulloch, William R., Bay City
Moblo, Richard G., Muskegon
Sass, Alvin W., Birmingham
Schmitt-Matzen, Henry W., Detroit

MINNESOTA
Meysembourg, David M., Rochester

MISSISSIPPI
Everett, Charles A., Jackson
Roberts, George C., Jr., Greenwood

MISSOURI
Auer, Raymond L., St. Louis
Mattson, Leland N., Webster Groves
Murphy, John W., Webster Groves
Shumate, James D., Webster Groves

NEW HAMPSHIRE
Lund, Theodore R., Lancaster

NEW JERSEY
Bowser, Lucius A., Elizabeth
Frangos, John, Fort Lee
Leventhal, Isadore H., Newark
Marvinney, Louis G., Short Hills
Panko, Charles S., Carteret
Rebarber, Frederick, Highland Park
Rifkin, Harold B., Montclair
Savin, Jules I., Newark
Susser, Arnold J., Bayonne
Truxton, Charles O., Haddonfield
Weiner, S. R., Morris Plains

NEW YORK
Aries, Robert S., New York City
Bernstein, Stanley, Brooklyn
Douglas, Vivian F., Brooklyn
Gillman, Robert, New York City
Kalmanor, Warren J., Jackson Heights
Mroczynski, Joseph, North Tonawanda
Nautel, Joyce, Albany
Padlon, Joseph F., Bellport
Pankowitz, Dennis, Briarwood
Reingold, Martin, New York City
Rivkin, Lawrence S., Syracuse
Ross, Nydia G., Bronx
Sister Mary Thomas, Albany
Topchik, S. Howard, Brooklyn
Tursi, Michael A., Fallsburg
Volpe, Nicholas, Flushing
Warmus, Gerald E., Buffalo
Weinstein, Monte M., Bronx
Woodward, Ethel I., Buffalo

NORTH CAROLINA
Harris, Joseph C., Jr., Durham

OHIO
Darr, William, Warren
Figueroa, Arturo, Akron
Fox, Frances L., Cleveland
Saginor, Philip P., Jr., Cleveland Heights
Vollman, Robert G., Cincinnati

OKLAHOMA
Hourigan, Jerome B., Bartlesville
Osborn, Robert A., Jr., Shawnee

PENNSYLVANIA
Babin, Joseph R., McKees Rocks
Helfand, Leopold E., Philadelphia
Jarvis, Milton L., Philadelphia
Koons, Wayne, Shickshinny
Munns, Thomas V., Pittsburgh
Press, William H., Haverford
Shapiro, Joan A., Philadelphia
Weinberg, Stanley H., Philadelphia
Wissler, Raymond B., Philadelphia

RHODE ISLAND
Denison, Thomas L., Providence

TENNESSEE
Hale, Steve P., Jr., Cookeville
Highfill, James W., Brownsville
Sister M. Gabriel, Humboldt

TEXAS
Castro, Lionel B., Houston
Catching, B. Doyle, Amarillo
Davis, Dorothy F., Dallas
Kinard, Jack, Bellaire
Sister Mary Aidan Finlay, Beaumont

WISCONSIN
Gwidt, Leo T., Stevens Point
Thompson, Douglas G., Lake Mills
Vujnovich, Mirjana, Milwaukee

INTERNATIONAL
Gandini, Andrea, Genoa, Italy
Johnson, Thomas J. C., London, England

Deceased Members

Hook, George B., Tacoma, Wash., Mar. 1956
Julian, Ernest S., Chattanooga, Tenn., Dec. 8, 1955
Marchbanks, Iliff C., Cookeville, Tenn.
Miller, Charles E., Vallejo, Calif., April 27, 1956
Muldoon, Hugh C., Waverly, N. Y., May 4, 1956 (Life Member)
Nickl, George M., South Orange, N.J., May 3, 1956
Pauly, William F., Apollo, Pa., Jan. 30, 1956
Petrusek, Victor M., Milwaukee, Wis., April 12, 1955
Reif, Ernest, Philadelphia, Pa. (Life Member)

Edwin R. Van Pelt

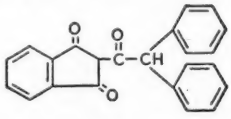
Edwin R. Van Pelt, grandson of the founder of Van Pelt's Drug Store established in New Brunswick, N.J., in 1827, died June 4 at the age of 94 at his home in New York City. The pharmacy was torn down in 1938 but complete prescription records and original formulas dating back to 1827 have been preserved by the successor, Rosevear's Pharmacy, at 56 Albany Street, New Brunswick, N.J. Objects from the old pharmacy are now preserved in Henry Ford's Dearborn Museum. An article written by the late Dr. Fred B. Kilmer of Johnson & Johnson, father of the poet, in the JOURNAL of the AMERICAN PHARMACEUTICAL ASSOCIATION[1], was read by Henry Ford and stimulated his interest in the old items.

Mr. Van Pelt was a deacon of the Presbyterian Church for many years, a member of the New Jersey Society of Sons of the American Revolution, and of Palestine Lodge 111, F&AM.

[1] "Drug Clerks 100 Years Ago," **18**, 711(1929).

New and Nonofficial Remedies

DIPHENADIONE; Dipaxin (Upjohn); 2-Diphenylacetyl-1,3-indandione.



Actions and Uses.—Diphenadione is an orally effective synthetic anticoagulant closely related chemically to another indandione derivative, phenindione, and also qualitatively similar in action and uses to coumarin derivatives such as bishydroxycoumarin. Like these agents, it inhibits blood coagulation by reducing the concentration of prothrombin and related factors; this is useful in the prevention and treatment of conditions characterized or complicated by intravascular clotting, but does not directly affect thrombi or emboli already formed or increase the blood supply to infarcted areas.

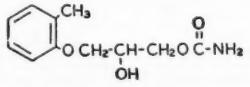
Since diphenadione is one of the most potent and prolonged-acting depressants of blood prothrombin activity, it is effective in smaller doses than most other oral anticoagulants. Adequate depression of blood prothrombin levels (prolongation of prothrombin time) usually is obtained within 48 to 72 hours after administration of the initial recommended dosage. This depression may persist for as long as 20 days after cessation of maintenance therapy.

Diphenadione has approximately the same ratio between its effective and toxic (hemorrhagic) dosage as other oral anticoagulants, so that similar care is necessary to avoid overdosage and hemorrhagic complications. Prothrombin time determinations should be made prior to treatment and daily until the effective maintenance dosage is established. Thereafter, prothrombin determinations at weekly or not longer than 10-day intervals may be sufficient. For most purposes, the prothrombin time should be prolonged from two to two and one-half times a standard normal time of 15 seconds. Undue hypoprothrombinemia and hemorrhagic complications not controlled by withdrawal of medication may be counteracted by phytonadione (vitamin K_1) and, when necessary, transfusion of whole blood.

So far, diphenadione has not been observed to produce untoward effects; however, because of its chemical similarity to phenindione, which has been reported to produce agranulocytosis, physicians should obtain periodic blood cell counts during prolonged therapy until sufficient experience has been gained to determine its long-term effects on the blood.

Dosage.—Diphenadione is administered orally. The suggested initial dosage, after determination of a normal prothrombin time, is 20 to 30 mg. the first day and 10 to 15 mg. the second day. When a prompt anticoagulant effect is indicated, initial medication can be supplemented by the concomitant intravenous administration of heparin sodium to achieve the desired prothrombin suppression. If the prothrombin time is more than 30 seconds at the end of the second day (48 hours), further therapy should be withheld until the prothrombin time starts to decrease. Thereafter the suggested daily doses of diphenadione are adjusted as follows: with a prothrombin time between 20 and 30 seconds, a dose of 10 to 15 mg.; with a prothrombin time between 30 and 35 seconds, a dose of 7 to 10 mg.; with a prothrombin time between 35 and 40 seconds, a dose of 5 mg. If the prothrombin time increases rapidly to more than 40 seconds during induction of therapy, or if there is a rapid increase during maintenance therapy, the dose should be withheld or only a small dose (1 to 2 mg.) administered on that day. The average daily maintenance dose is usually 3 to 5 mg. and should be adjusted to maintain prothrombin time between 30 and 37 seconds. Patients should be instructed to report any evidence of bleeding and to discontinue further medication immediately if the physician cannot be reached.

MEPHENESIN CARBAMATE; Tolseram (Squibb).—2-Hydroxy-3-*o*-toloxypropyl carbamate.—



Actions and Uses.—Mephenesin carbamate, a salt of mephenesin, exhibits the same systemic actions and has the same uses as the parent drug. (See the monograph on mephenesin in *New and Nonofficial Remedies.*) Mephenesin carbamate is less soluble than mephenesin and therefore more slowly absorbed from the gastrointestinal tract. Although its duration of action is somewhat longer, the carbamate is not more potent than the parent drug in equivalent amounts.

Dosage.—Mephenesin carbamate is administered orally. The usual dose for adults is 1 to 3 Gm. given three to five times a day, particularly after meals or with milk or fruit juice. Dosage for children should be reduced proportionately.

NYSTATIN; Mycostatin (Squibb). An antibiotic substance isolated from cultures of *Streptomyces noursei.* The chemical identity of nystatin has not been determined.

Actions and Uses.—Nystatin is used to treat infections caused by the monilial organism *Candida albicans.* Although the drug is effective *in vitro* against many yeasts and molds, its clinical usefulness in mycotic infections other than those caused by Candida has not been established. Nystatin is poorly absorbed from the gastrointestinal tract and is excreted almost entirely in the feces after oral administration. There is no evidence that the drug is absorbed through the skin or mucous membranes after topical application.

The drug has been found useful for the topical treatment of moniliasis of the mouth and buccal mucosa (thrush) and for monilial paronychia and other types of cutaneous monilial lesions. Local application of the drug has also been useful in cases of monilial infections of the vagina and labia. Oral administration of nystatin is considered suitable for the treatment of intestinal moniliasis, but the effec-

tiveness of its oral use as an adjunct to local therapy of the skin or mucous membranes is not yet established.

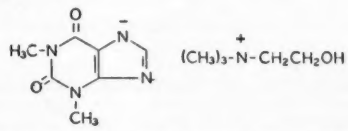
Nystatin has been employed orally for the prophylactic suppression of intestinal fungi and yeasts, particularly C. albicans, in patients undergoing oral therapy with broad-spectrum antibiotics. Although the percentage is low, clinical anal or rectal moniliasis develops in some patients in the course of such therapy, presumably because of overgrowth of nonsusceptible monilial organisms. In such patients, the concomitant administration of nystatin and a broad-spectrum antibiotic is indicated.

Because of questionable absorption and local irritation, the parenteral use of nystatin is not feasible at present. The use of nystatin should be considered established only for its local action in the intestine, on the skin, and on mucous membranes. Nystatin is relatively nontoxic and has few side-effects. The infrequent untoward reactions reported have been mild and transitory, consisting chiefly of nausea, vomiting, and diarrhea after oral administration. Changes in the peripheral blood or blood-forming organs have not been reported after prolonged oral therapy.

Dosage.—The dosage of nystatin is expressed in terms of units. For gastrointestinal monilial infection, the proposed dose for adults is 500,000 to 1,000,000 units three times a day. In chronic or resistant anal or vaginal moniliasis, the oral administration of 500,000 units three times daily has been used adjunctively with topical application to overcome or decrease the possibility of reinfection from the intestine. Suspensions of nystatin in water, honey, or other vehicles, containing 100,000 units per cc., may be dropped into the mouth or applied locally with a swab to monilial lesions of the mouth. Vaginal infections are treated by the local use, once or twice daily, of suppositories or tablets containing 100,000 units. For cutaneous or mucocutaneous moniliasis, an ointment containing 100,000 units per Gm. should be applied directly to the mycotic lesions once to several times daily.

If the drug is to be tried for treatment of systemic infections, the proposed oral dose is 1,000,000 units four times daily, and it may be increased beyond this level if side-effects do not become troublesome. The recommended oral dosage for children is 100,000 units three to four times daily.

OXTRIPHYLLINE; Choledyl (Nepera).—Choline theophyllinate.



Actions and Uses.—Oxtriphylline is a theophylline compound that produces the mild diuretic, myocardial stimulating, vasodilator, and bronchodilator actions of similar xanthine derivatives. (See the general statement on xanthine derivatives in New and Nonofficial Remedies.) Oxtriphylline is more soluble than aminophylline; it also appears to be more stable, is better absorbed from the gastrointestinal tract, and produces less gastric irritation. Thus it is tolerated orally in larger doses and produces higher theophylline blood levels than can be achieved with equal doses of aminophylline. Hence, in contrast to theophylline and theophylline compounds, which are poorly tolerated by the stomach, oxtriphylline can be administered orally in doses adequate for the management of bronchial asthma (including pulmonary emphysema) and for the control of paroxysmal cardiac dyspnea and Cheyne-Stokes respiration. Like other theophylline compounds, it is also effective as a mild diuretic for the management of dependent and chronic pulmonary edema secondary to congestive heart failure. The drug also may be tried in selected cases of angina pectoris and coronary disease whenever myocardial stimulation would not be harmful. Its usefulness in premenstrual tension or in dysmenorrhea has not been established.

Oxtriphylline is essentially nontoxic at clinically effective dosage levels. Comparative studies with other theophylline compounds that are well tolerated orally have not been made.

Dosage.—Oxtriphylline is administered orally. In the treatment of asthma, dosage for adults may range from 0.1 to 0.4 Gm., four times daily. The recommended initial dosage is 0.2 Gm. Two weeks or more may elapse before the full effect develops. The usual dosage for children 6 years of age or older is 0.1 Gm. three or four times daily; the drug is not recommended for younger children.

SODIUM RADIO-PHOSPHATE (P^{32}).—Anionic radioactive phosphorus in the form of a solution of sodium acid phosphate ($NaHP^{32}O_4$) and sodium basic phosphate ($Na_2HP^{32}O_4$) having a *p*H between 5.0 and 6.0. It has a half-life of 14.3 days.

Actions and Uses.—Sodium radio-phosphate (P^{32}) emits only beta particles, which dissipate a maximum energy of 1.69 million electron volts (mev) to a maximum depth of 8 mm. of tissue. Thus, most of the ionizing action is localized in the tissue that takes up the isotope. In the body, the radioisotope is metabolized in the same manner as stable phosphorus (P^{31}) and therefore is distributed to tissues in the same relative proportion as the stable element. After administration, the isotope is found in highest concentration in rapidly proliferating tissues with high phosphorus content such as bone marrow, lymph nodes, liver, and spleen. The distribution of radio-phosphorus is also influenced by disease, the uptake being much higher in neoplastic tissue than in the same type of tissue in a normal state of growth. Since the immediate uptake of the radioisotope is highest in those tissues that also exhibit the greatest radiosensitivity, its initial effects are similar to total body radiation; however, bone marrow ultimately becomes the most radioactive tissue regardless of initial d'stribution. The pharmacological effects of this isotope are related entirely to its local ionizing action, and the outstanding sequelae to overdosage are those resulting from bone marrow depression.

About 75% of the oral dose of sodium radiophosphate (P^{32}) is absorbed from the gastrointestinal tract. After intravenous injection, the isotope rapidly enters the phosphate pool of the body and is distributed to the tissues. After either oral or inrtavenous administration, radio-phosphate is excreted in the urine, approximately 25 to 50% of the drug appearing in the urine in the first 6 days.

Sodium radio-phosphate (P^{32}) has been used extensively in the treatment of polycythemia vera, either alone or adjunctively with phlebotomy. Since polycythemia vera is frequently characterized by a panmyelosis rather than a simple erythrocytic hyperplasia, the use of an agent that depresses all marrow elements is particularly well suited for its therapy. Sodium radio-phosphate (P^{32}), in addition to controlling excessive erythrocyte levels, also depresses thrombocyte and leukocyte proliferation and thus reduces the incidental morbidity of arterial thrombosis and relieves the symptoms of hepatomegaly and splenomegaly. Although palliative, this agent is capable of inducing hematological remissions, leaving the patient symptom-free for months; however, its use is not without disadvantage. The chief disadvantage is the risk of excessive bone marrow depression with attending leukopenia,

NNR . . . . . • *continued*

thrombocytopenia, and anemia. Frequent peripheral blood counts and, if necessary, bone marrow examinations are indicated for all patients undergoing radio-phosphorus therapy. Therapy should be discontinued should indications of excessive marrow depression become evident. Sodium radiophosphate (P^{32}) is contraindicated for patients in whom the blood platelet count is less than 150,000, reticulocytes less than 0.2%, or white blood cell count less than 3,000.

Sodium radio-phosphate (P^{32}) has been used effectively in the treatment of chronic myelogenous leukemia, and it is considered one of the most effective therapeutic agents currently available for this disease. In chronic lymphocytic leukemia, sodium radio-phosphate (P^{32}) has been of some benefit, but the hematological and clinical response is not as good as that obtained by isotope therapy in the chronic myelogenous form of the disease. In many cases, local irradiation of affected lymph nodes brings more rapid relief of symptoms than does radio-phosphorus therapy. Acute leukemia, in any form, does not respond to therapy with radioactive phosphorus.

The drug is of little value in the treatment of Hodgkin's disease and is inferior to x-ray therapy in lymphosarcoma. It has not proved applicable in multiple myeloma nor in any solid tumors of carcinomatous or sarcomatous origin. The same precautions regarding bone marrow depression as are observed in cases of polycythemia vera should be exercised in treating chronic leukemia with radioactive phosphorus. Sodium radio-phosphate (P^{32}) should be administered with extreme caution to leukemic patients with red blood cell counts of less than 2,500,000.

Because of its preferential uptake in neoplastic tissues, sodium radio-phosphate (P^{32}) has been employed for the localization of brain tumors and for the diagnosis and localization of intraocular tumors. When the isotope is administered before surgery to patients with known intracranial tumors, it is sometimes possible to discern the extent of neoplastic involvement by means of probe counters applied directly to the exposed brain tissue.

In the diagnosis and localization of intraocular tumors, sodium radio-phosphate (P^{32}) is administered shortly before probe counters are placed over various areas of the same eye or symmetrically located areas of both eyes. Increased radioactivity over any particular area may be presumptive evidence of neoplastic involvement. Limited experience has indicated the procedure to be of some value in the diagnosis and localization of anterior tumors but of little value in more deep-seated intraocular malignancies.

While the use of sodium radio-phosphate (P^{32}) for tagging red blood cells for a single blood volume determination is no less accurate, the use of other radioactive agents, such as sodium radio-chromate (Cr^{51}), provides longer term tagging and is now considered preferable for this purpose. The isotope is extensively used in experimental laboratories as a metabolic tracer.

Although the isotope as supplied in glass containers is relatively safe, extreme care should be observed in handling. Severe beta radiation burns can result from contact with the skin. The radioactive material should be handled only by personnel well trained in the use of radioisotopes, and adequate monitoring apparatus should be available at all times.

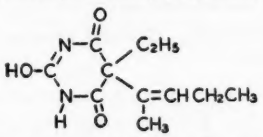
Dosage.—Sodium radio-phosphate (P^{32}) dosage calculations must take into account radioactive decay. Radioactive phosphorus has a half-life of 14.3 days, and the radioactivity, expressed as microcuries or millicuries, is indicated at the time of labeling. The isotope is administered orally or intravenously in aqueous solutions of appropriate concentration.

In polycythemia vera, initial intravenous doses vary from 2.5 to 5 mc. (millicuries) depending on the severity of the disease. The average initial dose is 3 mc. Phlebotomy may be carried out prior to isotope therapy to reduce the erythrocyte count to 6,000,000 or the hematocrit value to 55%. Hematological examinations should be carried out at bimonthly intervals after therapy. If at the end of two or three months further treatment is indicated, an additional dose may be given at that time, not to exceed 3 or 4 mc. Repeat doses should be given at intervals of not less than two months. Because of incomplete absorption, oral doses must be increased 25% over intravenous doses.

Chronic leukemias (myelogenous and lymphatic) are treated with repeated low doses of sodium radiophosphate (P^{32}). Treatment must be individualized because of great variations in response. For the average patient, 1 to 2 mc. intravenously each week for four to eight weeks is usually necessary to bring about remissions. Patients should be examined each week during this initial period, with particular emphasis being placed on the trend of blood cell response and the general clinical picture. If remissions occur, monthly examinations should be carried out and subsequent courses of therapy instituted when clinical signs and symptoms recur. It may be possible to maintain patients in remission by carefully arriving at the minimum dose that will keep the white blood cell count between 10,000 and 20,000. Experience has shown that it is not advisable to attempt to adjust the blood elements to normal levels, because of the danger of overdosage. Oral doses are increased proportionately to overcome incomplete absorption.

For brain tumor localization, 0.5 to 1 mc. of sodium radio-phosphate (P^{32}) is injected intravenously 12 to 24 hours before surgery. In the diagnosis and localization of intraocular tumors, 0.5 mc. intravenously is the proposed dose.

VINBARBITAL, N.F.; Delvinal (Sharp & Dohme); 5-Ethyl-5(1-methyl-1-butenyl)barbituric acid.



Actions and Uses.—Vinbarbital, a barbituric acid derivative with intermediate duration of action, has the same sedative and hypnotic uses as its sodium salt. (See the monograph on vinbarbital sodium in N.N.R.) Its use involves the same side-effects as other barbituric acid derivatives, but it is less likely to cause epigastric distress after oral administration than the sodium salt.

Dosage.—See the monograph on vinbarbital sodium in N.N.R.

◆ **Ophthalmic Use of Erythromycin.** The NNR monograph on erythromycin has been amended to recognize the use of the ophthalmic ointment containing 5 mg. per Gm. The ophthalmic ointment may be applied to the infected eye one or more times daily. Mild, transient reactions to ophthalmic application have occurred occasionally.

NEW Prescription Products

All items on which information has been received in the past thirty days are reported here. Manufacturers are urged to send details of their new products as early as possible, so that pharmacists through these pages will have full information at the same time, or even before, products are detailed to the physician. For inclusion in this department, for which there is no charge, send descriptive literature to the Practical Pharmacy Edition, Journal of the American Pharmaceutical Association, 2215 Constitution Avenue, N.W., Washington 7, D.C.

Albamycin Capsules

Description: Capsules containing, in each, 250 mg. of novobiocin sodium (Albamycin sodium).

Indications: Antibiotic effective against many organisms, particularly useful against infections due to staphylococci and some strains of Proteus.

Administration: Orally, 500 mg. at twelve-hour intervals.

Form Supplied: Bottles of 16 capsules.

Source: The Upjohn Co., Kalamazoo, Mich.

Aramine Bitartrate Injection

Description: Each cc. contains 10 mg. (1%) metaraminol bitartrate.

Indication: To raise and maintain blood pressure in acute hypotensive states.

Administration: Parenterally (i.m., s.c., or i.v.) according to the needs of the patient.

Form Supplied: 1-cc. ampuls and 10-cc. vials.

Source: Sharp & Dohme, Philadelphia, Pa.

Axofor Capsules

Description: Each capsule contains: dipyrone (4 - methylamino - 1,5 - dimethyl - 2 - phenyl - 3-pyrazolone), 60 mg.; acetophenetidin, 120 mg.; acetylsalicylic acid, 200 mg.; and phenobarbital, 15 mg.

Indications: For relief of pain and headache, and insomnia as a result of pain.

Administration: One or two capsules every hour for 3 doses, then 1 every 2 hours as required.

Form Supplied: Bottles of 100, 500, and 1,000.

Source: The Warren-Teed Products Company, Columbus, Ohio.

Bubartal Sodium Injection

Description: A solution containing in each cc.: butabarbital sodium, 125 mg., in polyethylene glycol 400 U.S.P. 40%, benzyl alcohol 2%, and water for injection.

Indications: For mild sedation to hypnosis. Acts within 15 minutes and lasts 5–6 hours.

Administration: Intramuscularly only, 0.5–1 cc. for sedation; 1–2 cc. for hypnosis.

Form Supplied: 10-cc. multiple-dose vials.

Source: Columbus Pharmacal Company, Columbus, Ohio.

Cathomycin Capsules

Description: Capsules containing, in each, 250 mg. of novobiocin sodium (Cathomycin sodium, Merck, S. & D.).

Indications: Antibiotic effective against strains of staphylococci resistant to other antibiotics.

Administration: As directed by physician.

Form Supplied: Vials of 16 capsules.

Source: Sharp & Dohme, Philadelphia, Pa.

Ergoval Capsules

Description: Each capsule contains 125 mg. powdered extract of ergot dispersed in castor oil.

Indications: In the treatment of amenorrhea, dysmenorrhea, meno-metrorrhagia, and for obstetric use as in delayed involution of uterus. Contraindicated in presence of Raynaud's disease or thromboangiitis obliterans.

Administration: One or 2 capsules 3 to 4 times daily. For obstetric use (third stage of labor), 2 capsules repeated as required.

Form Supplied: 8-minim capsules in packages of 12.

Source: Martin H. Smith Company, New York N.Y.

Furacin Soluble Dressing—New Package

A 5-oz. plastic jar replaces the 4-oz. glass container for Furacin Soluble Dressing marketed by *Eaton Laboratories.*

Gymens Tablets

Description: Each tablet contains: ethisterone, 5 mg.; ammonium chloride, 325 mg.; *d*-amphetamine sulfate, 2.5 mg.; *l*-hyoscyamine HBr, 0.0625 mg.

Indications: For inhibition of menstrual pain and premenstrual tension.

Administration: Two tablets after breakfast, luncheon, and at 3 P.M. for 8–10 days prior to menses.

Form Supplied: Bottles of 100 and 1,000.

Source: Columbus Pharmacal Co., Columbus, Ohio.

Histionex Capsules

Description: Each dark green and white capsule contains 50 mg. and each light green and white capsule contains 25 mg. phenyltoloxamine bound as an insoluble cation exchange resin complex which slowly releases the antihistamine when exposed to hydrogen ions or sodium or potassium ions.

Indications: As antiallergenic agent.

Administration: One capsule morning and evening—50-mg. capsule for adults, 25-mg. capsule for children 6–12 years—provides 24-hour medication.

Form Supplied: Bottles of 100 and 400.

Source: R. J. Strasenburgh Co., Rochester, N.Y.

NEW *Prescription Products*

Metreton Nasal Spray
Metreton Tablets

Description: Nasal spray—each cc. contains prednisolone acetate, 2 mg., and chlorprophenpyridamine gluconate, 3 mg., with 0.25 mg. benzalkonium chloride preservative. Tablets—each yellow and white tablet contains prednisone, 2.5 mg., and chlorprophenpyridamine maleate, 2 mg.

Indications: Anti-inflammatory, antiallergenic corticoid-antihistamine preparations.

Administration: Nasal—one spray in each nostril every 3 or 4 hours. Oral—initial, 1 or 2 tablets after meals and at bedtime. Reduce dosage to minimum.

Form Supplied: Nasal spray in 15-cc. plastic bottles. Tablets in bottles of 30 and 100.

Source: Schering Corporation, Bloomfield, N.J. (See advertisement opposite page 504.)

Paskate Pulvules

Description: Brown and gray opaque capsules, each containing 0.5 Gm. of potassium aminosalicylate.

Indications: As an adjunct to other antituberculous drugs. Contraindicated in patients with severe renal impairment.

Administration: Orally, 12 Gm. daily in 3 or 4 divided doses without regard to meals.

Form Supplied: Bottles of 250 and 1,000.

Source: Eli Lilly and Company, Indianapolis, Ind.

Reserpine Injection

Description: Solution containing 2.5 mg. or 5 mg. of reserpine in each cc.

Indications: Treatment of psychiatric and malignant hypertension.

Administration: Intramuscularly only as directed.

Form Supplied: Both strengths in 2-cc. ampuls in boxes of 25 and 100 ampuls.

Source: Philadelphia Ampoule Laboratories, Philadelphia, Pa.

Other New Products

(Including chemicals, clinical trial drugs, diagnostic aids, and equipment for the retail and hospital pharmacy.)

Almebex Plus B_{12} Elixir

A liquid containing rice bran concentrate, yeast extract, and malt extract, with added vitamins B_{12}, B_1, and B_2, *d*-pantothenyl alcohol, choline, inositol, and biotin, is marketed by *Meyer and Company* as a dietary supplement. Available in pints and gallons.

Andira Tablets

Tablets containing in each: citrus pectin, $2^1/_4$ gr., and calcium gluconate, $1^1/_2$ gr., are marketed by *Paul Maney Laboratories, Inc.*, for treatment of diarrhea. Supplied in bottles of 100 and 1,000.

Asterol Products—Nonlegend

Asterol ointment, tincture, and powder, marketed by *Hoffmann-LaRoche* for treatment of athlete's foot and other external fungus infections can now be purchased without a prescription, according to a recent ruling by FDA.

Bacimycin with Hydrocortisone Ointment

A topical and ophthalmic ointment containing, in each Gm.: bacitracin, 500 units; neomycin sulfate, 5 mg.; hydrocortisone 10 mg. (1%), for relief of inflammatory or allergic skin disorders and infections and for ocular infections, is marketed by *Walker Laboratories, Inc.* It is available in $^1/_8$-oz. tube with tip.

Binitrin Tablets

Tablets containing, in each, nitroglycerin 0.3 mg. and pentaerythritol tetranitrate 10 mg., for prevention of attacks of angina pectoris, are marketed by *The Vale Chemical Co., Inc.* Dosage is one tablet every 4 hours. Available in bottles of 100 and 1,000.

Bonadettes Tablets

Tablets containing, in each, 25 mg. meclizine (Bonamine) HCl are marketed by *Pfizer Laboratories* for over-the-counter sale. The foil-enclosed, scored, raspberry-flavored tablets are available in boxes of 10.

Butiserpine Elixir

An elixir containing in each teaspoonful: Butisol (butabarbital) sodium, 15 mg.; and reserpine 0.1 mg. (equivalent to 1 Butiserpine tablet) is marketed by *McNeil Laboratories, Inc.*, for treatment of mild to moderate essential hypertension and as a mild sedative and tranquilizer. Dosage is 1 to 4 teaspoonfuls daily. Available in 12-oz. bottles.

Cortispray Solution

A topical solution of hydrocortisone 0.5%, for relief of itching and inflammation in various dermatoses, is marketed by *Walker Laboratories, Inc.* It is sprayed lightly over affected areas 2 to 3 times daily. Available in 15-cc. nonpressurized plastic spray bottles.

Cortomycin Ointment

An ointment containing, in each Gm.: hydrocortisone acetate, 10 mg. (1%) or 25 mg. (2.5%), in addition to neomycin sulfate, 5 mg., and the preservatives methylparaben, 1.8 mg.; and propylparaben, 0.2 mg., is marketed by the *Bryant Pharmaceutical Corp.* for the treatment of atopic and contact dermatitis.

Donnagesic Extentabs No. 1 and No 2

Extended action pink (No. 1) tablets containing in each: hyoscyamine sulfate, 0.311 mg.; atropine sulfate, 0.0582 mg.; hyoscine HBr, 0.0195 mg.; phenobarbital, 48.6 mg.; and codeine phosphate, 48.6 mg.; and red (No. 2) tablets, differing only in having 97.2 mg. of codeine phosphate per tablet, are marketed by *A. H. Robins Co., Inc.* Dosage for No. 1 or No. 2 tablets is one every 10 or 12 hours. Both strengths are available in bottles of 30 tablets. These products are equivalent to Donnatal with codeine in extended action form.

Duo-C.V.P. Capsules

Double strength C.V.P. capsules, containing 200

mg. water-soluble citrus bioflavonoid compound with 200 mg. ascorbic acid, for prevention and treatment of abnormal capillary permeability and fragility, are marketed by *U.S. Vitamin Corporation*. Dosage is 1 to 3 capsules daily. Available in bottles of 50, 100, 500, and 1,000.

Fleet Enema

A solution containing sodium biphosphate, 16 Gm., and sodium phosphate, 6 Gm., in each 100 cc. is marketed in a 4½-fluidounce disposable plastic unit by *C. B. Fleet Co., Inc.*, for use as an enema.

Fluoro-Ethyl Aerosol

A nonflammable solution of ethyl chloride 25% in dichlorotetrafluoroethane 75% for use as a topical refrigerant anesthetic is marketed in a 6-oz. spray container by *The Gebauer Chemical Co.*

Hycodrox Tablets

Tablets marketed by *Columbus Pharmacal Co.* for use in ulcer therapy contain, in each: colloidal aluminum hydroxide (dried), 400 mg.; colloidal magnesium hydroxide (dried), 100 mg.; scopolamine methylbromide, 0.65 mg.; *l*-hyoscyamine HBr, 0.125 mg.; and Bulkogen (phytomucin from *Cyamopsis tetragonaloba* seeds), 50 mg. Dosage for adults is 1–2 tablets 4 times daily between meals and at bedtime; for children according to weight. Supplied in bottles of 100 and 1,000.

Hydrobalm Topical Cream

A greaseless cream containing hydrocortisone 0.5%, calamine 8%, benzocaine 3%, and hexylated metacresol 0.05%, for relief of irritating skin conditions, is marketed by *Sharp & Dohme*. Available in 5-Gm. and 15-Gm. tubes.

Isodine Solution

A solution containing a complex formed by iodine and polyvinylpyrrolidone (PVP) is marketed by *Isodine Pharmacal Corporation* as an iodine antiseptic for topical use. Available in ½-oz. bottles.

Isopto Carpine Solution 0.25% and 3%

Ophthalmic solutions containing 0.25% and 3% of pilocarpine HCl in 0.5% methylcellulose vehicle are added to the 0.5, 1, 2, and 4% solutions marketed by *Alcon Laboratories, Inc.* All are supplied in 15-cc. plastic dropper (Drop-Tainer) bottles.

Isopto Cetamide Solution—New Size

The 15% sulfacetamide sodium ophthalmic solution with 0.5% methylcellulose marketed by *Alcon Laboratories, Inc.*, is now available in 5-cc. dropper bottles in addition to the 15-cc. Drop-Tainer.

Kalnatal Tablets

Tablets (Maneycote red) containing vitamins and minerals in a nutritional supplement formulation is marketed by *Paul Maney Laboratories, Inc.*, for use in pregnancy, lactation, convalescence, and iron deficiency anemias. Daily dietary allowances recommended by the National Research Council are utilized. Dosage is 1 tablet 2 or 3 times daily after meals. Supplied in bottles of 100, 500, and 1,000.

Lullamin Drops

A syrup containing, in each cc., methapyrilene HCl, 16 mg., and 0.2% alcohol is marketed by *Reed & Carnrick*, who recommend it as a sedative for children up to 12 years in dosage of 5 to 20 drops as needed up to four times daily according to age. It is supplied in bottles of 25 cc. with calibrated dropper.

Mephyton Tablets

Phytonadione (vitamin K_1) in now marketed by *Sharp & Dohme* in the form of 5-mg. tablets. This supplements the Mephyton injection which is also available. Mephyton tablets are available in bottles of 100.

Modane Mild Tablets

Tablets containing, in each, 1,8-dihydroxyanthraquinone (danthron), 37.5 mg.; and *d*-calcium pantothenate, 12.5 mg., for bowel stimulation, is marketed by *The Warren-Teed Products Co.* Modane Mild (pink) tablets are half the strength of regular Modane (yellow) tablets. Dosage, 1 or 2 tablets after evening meal. Supplied in bottles of 100, 500, 1,000, and 6,000.

Neo-Delta-Cortef Nasal Spray

A nasal spray solution containing in each cc.: prednisolone acetate, 1 mg. (0.1%); neomycin sulfate, 5 mg.; phenylephrine HCl, 2.5 mg.; and myristyl-gamma-picolinium chloride 1:5,000, has been marketed by *The Upjohn Company* in 15-cc. plastic spray bottles for the relief of symptoms of inflammatory nasal conditions.

Opticlear Snap-Cap Vials

Kimble Glass Company has introduced polyethylene Snap-Caps which fit on the outside of their Opticlear vials. The caps can be opened or closed with a flick of the thumb. Vials in 3-, 5-, 7-, 10-, and 12-dram sizes are available with Snap-Cap or plug stoppers.

Pomalin Suspension

A flavored suspension containing in each 15 cc.: sulfaguanidine, 2 Gm.; pectin, 0.225 Gm.; kaolin, 3 Gm.; and opium tincture, 0.08 cc., recommended for treatment of infections and functional diarrheas, is marketed by *Winthrop Laboratories*. Dosage of the exempt narcotic preparation is given on the bottle label. Available in pint bottles.

Protosil Ointment

An ointment containing tyrothricin 0.01%, hexachlorophene 0.5%, benzocaine 2%, in addition to vitamins A and D, silicone, and zinc oxide in a washable base is marketed by *Bryant Pharmaceutical Corp.* as a protective and healing agent. Available in tubes.

Redifact Forte Elixir

An elixir containing cyanocobalamin (vitamin B_{12}) with intrinsic factor concentrate is marketed by *Sharp & Dohme* The tablet form is also available.

Renir Tablets

Yellow tablets, each containing reserpine 0.25 mg. and ephedrine 8 mg., are marketed by *The S. E. Massengill Company* for the treatment of hypertension (1–3 tablets daily) and mentally disturbed states (2–4 tablets daily). The tablets should be used with caution in patients with peptic ulcer, mental depression, cardiac conditions, and related disorders. Available in bottles of 100 tablets.

NEW *Prescription Products*

Reserpine T.D. Capsules

Timed disintegration capsules containing, in each, 0.25 mg., 0.5 mg., or 0.75 mg. of reserpine, and releasing the medication over a period of 6–8 hours for antihypertensive and sedative effect, are marketed by *West-ward, Inc.* All strengths are available in bottles of 100 and 1,000 capsules.

Silmidate-M with Codeine Tablets

Tablets containing in each: codeine phosphate, 8 mg.; mephenesin, 500 mg.; salicylamide, 200 mg.; and ascorbic acid, 25 mg., are marketed by *Charles C. Haskell & Co., Inc.*, for relief of severe pain associated with muscle spasm. Dosage is 2 to 4 tablets 3 to 5 times daily. The narcotic preparation is available in bottles of 100 tablets.

Sulfid B-A Tablets

Tablets containing, in each: phenylazodiaminopyridine, 50 mg.; sulfacetamide, 250 mg.; hyoscyamine sulfate, 0.05185 mg.; atropine sulfate, 0.0097 mg.; and hyoscine HBr, 0.00325 mg., are marketed by *Columbus Pharmacal Co.* as an antiseptic, analgesic, antispasmodic in urinary tract disorders. Dosage is 2 tablets after each of 3 meals and at bedtime. Supplied in bottles of 100 and 1,000.

Sulfid Pediatric Suspension
Sulfid Tablets

A butter-caramel flavored suspension containing in each 5 cc.: phenylazodiaminopyridine HCl, 25 mg., and sulfacetamide, 125 mg., is marketed for treatment of urinary tract infections by *Columbus Pharmacal Co.* The children's dosage ranges from $^1/_2$ teaspoonful 3 times daily for infants under 1 year to 3 teaspoonfuls 3 times daily for 9–12-year-olds. Sulfid tablets for adults, formerly called Sulfidium tablets, contain 50 mg. and 250 mg., respectively, of the two ingredients per tablet. The suspension is available in 4-oz. bottles; tablets in bottles of 100.

Testaldiol Buccal Tablets

Tablets containing, in each: methyltestosterone, 5 mg., and estradiol, 0.125 mg., for combined estrogen and androgen therapy, are marketed by *Meyer and Company.* Available in bottles of 100 and 1,000.

Theobarb-R Tablets

Light blue, scored tablets containing, in each: theobromine, 324 mg.; phenobarbital, 10 mg.; and reserpine, 0.1 mg., are marketed by *Vanpelt & Brown, Inc.* Recommended dosage for the hypotensive-sedative product is one tablet three times daily. Available in bottles of 50 tablets.

Trimester Capsules

A prenatal formulation supplying phosphorus-free calcium and hesperidin plus the recommended daily dietary allowances of vitamins indicated by the National Research Council is marketed by *Haug Drug Co.* Available in bottles of 100 and 500 capsules.

Tri-Synar Plus Tablets

Light lavender tablets containing, in each, belladonna ext., 4.1 mg.; phenyltoloxamine, 20 mg.; ethaverine HCl, 12.5 mg.; phenobarbital, 2.025 mg.; butabarbital sodium, 2.025 mg.; pentobarbital sodium, 6.075 mg.; and secobarbital sodium 6.075 mg., are marketed by *The Armour Laboratories.* The antispasmodic preparation is recommended for control of tension peaks by administration of 1 tablet three or four times daily, or 2 tablets three times daily if required. Available in bottles of 100 tablets.

Unicap Therapeutic Tablets

The Upjohn Company has marketed tablets containing, in each: vitamin A, 5,000 u.; D, 500 u.; C (sod. ascorbate), 150 mg.; B_1 (mononitrate), 10 mg.; B_{12} activity, 4 mcg.; riboflavin, 10 mg.; pyridoxine HCl, 2 mg.; calcium pantothenate, 20 mg.; nicotinamide, 100 mg.; folic acid, 1.5 mg.; and compounds furnishing Co 0.1 mg., Cu 1 mg., Fe 10 mg., Mn 1 mg., Mo 0.2 mg., Zn 1.5 mg., Mg 6 mg., K 5 mg., I 0.15 mg., Ca 60 mg. Dosage is one tablet daily. Available in bottles of 30, 100, and 500 tablets.

Vanulets Captabs

Bryant Pharmaceutical Corp. has marketed a dietary supplement containing in each Captab unit: vitamin A, 5,000 u.; vitamin D, 1,000 u.; thiamine HCl, 3 mg.; riboflavin, 3 mg.; pyridoxine HCl, 0.5 mg.; cobalamin (B_{12} activity), 3 mcg.; ascorbic acid, 50 mg.; calcium pantothenate, 5 mg.; folic acid, 0.25 mg.; and niacinamide, 20 mg. Available in bottles of 100 and 1,000.

Zestamin Captabs

A therapeutic combination of vitamins and minerals in pink, oblong Captabs is available from *Bryant Pharmaceutical Corp.* (See advertisement on page 443, July issue.)

Ziradryl Lotion

A lotion similar in composition to Ziradryl Cream, containing zirconium oxide, diphenhydramine HCl and camphor, for prophylaxis and treatment of poison ivy and poison oak is marketed by *Parke, Davis & Company.*

Zylax Tablets

Laxative tablets containing, in each, sodium carboxymethylcellulose, 300 mg.; brewer's dried yeast (with added vitamin B_1) 160 mg.; and acetphenolisatin, 5 mg., are marketed by *Otis E. Glidden & Co., Inc.* Available in tins of 12.

VETERINARY PRODUCTS

Aurovim Poultry Powder

A preparation containing in each pound: Aureomycin HCl 3.1 Gm.; vitamins A 200,000 u., D 164,000 u., B_{12} 600 mcg.; niacin 640 mg.; riboflavin 160 mg.; and calcium pantothenate 160 mg., for growth stimulation or treatment of blue comb and hexamitiasis in poultry, is marketed by *American Cyanamid Company.* Available in 1- and $3^1/_2$-lb. cans.

Gallimycin Poultry Formula

A water-soluble product containing erythromycin, for management of chronic respiratory disease (air sac) and blue comb (mud fever or nonspecific enteritis) in poultry flocks, is marketed by *Abbott Laboratories.* Gallimycin poultry formula should be administered in drinking water or/and in feed. Supplied in $^1/_2$-, 1-, and 5-lb. containers.

CUMULATIVE

NEW PRESCRIPTION PRODUCTS INDEX

JANUARY 1956—AUGUST 1956

Listed by Products

Achrocidin Tablets, Lederle, April, 258
Aci-Derma Lotion, Princer, July, 483
Albamycin Capsules, Upjohn, Aug., 544
Albumisol 25% Concentration, Merck S & D, July, 482
Almebex Plus B_{12} Elixir, Meyer, Aug., 545
Almethine Duracap Capsules, Meyer, Jan., 58
Almetrifon Germicidal Detergent, Meyer, July, 483
Alurate Elixir—flavor change, Hoffmann-La Roche, Feb., 124
Alu-Scop Capsules and Suspension, Lloyd, Dabney & Westerfield, May, 355
Americaine Aerosol—new size, Arnar-Stone, April, 259
Anatoid Suppositories, Miller, Jan., 58
Andira Tablets, Maney, Aug., 545
A.P.C. with Demerol Tablets, Winthrop, May, 355
Aqua-B with Ascorbic Acid Injection, Upjohn, April, 258
Aquasol A Cream with Panthoderm, U.S. Vitamin, Mar., 195
Aquavac Infectious Bronchitis Vaccine (Vet.), Lederle, July, 483
Aquavac Newcastle Disease Vaccine (Vet.), Lederle, July, 483
Aramine Bitartrate Injection, Merck S & D, Aug., 544
Ascorbacaine Capsules, Testagar, May, 355
Ascorutin-Bio Tablets, U.S. Standard, July, 483
Aspirin (Aluminum Salt) Dulcet Tablets, Abbott, April, 259
Asterol Products—nonlegend, Hoffmann-La Roche, Aug., 545
Atarax Tablets, Roerig, July, 482
Aureomycin Poultry Formula (Vet.), Lederle, Mar., 195; —Powder, May, 356
Aurovim Poultry Powder (Vet.), American Cyanamid, Aug., 547
Axofor Capsules, Warren-Teed, Aug., 544
Azo Gantrisin Tablets, Hoffmann-La Roche, May, 355

Bacimycin with Hydrocortisone Ointment, Walker, Aug., 545
Belbarb B Tablets, Haskell, Feb., 124
Belbarb Trisules, Haskell, Feb., 124
Benoquin Lotion, Elder, July, 483
Bentyl Hydrochloride Injection—new dosage size, Merrell, July, 483
Binitrin Tablets, Vale, Aug., 545
Biocol Cold Capsules, Bryant, May, 356
Biphetamine Resin Capsules, Strasenburgh, Feb., 122
Bismuth Subsalicylate Injection, Testagar, May, 356
Bonadettes Tablets, Pfizer, Aug., 545
Bubartal Sodium Injection, Columbus, Aug., 544
B-Telve Tablets, Maney, Mar., 193
Bufazo Capsules, Sutliff & Case, July, 483
Butiserpine Elixir, McNeil, Aug., 545

Calcidrine Syrup, Abbott, Mar., 193
Cal-O-B Tablets, Warren-Teed, June, 419
Cal-O-Nol w/Antihistamine, Maney, June, 419
Camoform HCl Tablets, Parke Davis, Mar., 193
Cardiac Emergency Kit, Portable, Essex County (N.J.) Heart Assoc., July, 484
Cathomycin Capsules, Merck S & D, Aug., 544
Caytine—clinical trial in asthma, Lakeside, April, 259
Cerofort Elixir and Tablets, White, Feb., 122
Chymar Injection, Armour, Mar., 193
Citra Capsules; —Cough Syrup, Boyle, July, 483
Citroid Compound Capsules, Grove, Mar., 195
Clinistix for Urine Sugar Test, Ames, Mar., 195
Co-Deltra Tablets 5 mg., Merck S & D, April 259; —2.5 mg., June, 419
Co-Hydeltra Tablets 5 mg., Merck S & D, April 259; —2.5 mg., June, 419
Colace Capsules and Solution, Mead Johnson, May, 356
Collapsible Tube Filler, Olaf Paris, April, 259
Compren Pulvules, Lilly, May, 356
Conceptulator for Timing Conception, Davidson, Feb., 124
Consol Suspension, Merrell, April, 258
Corex Forte Tablets, Upjohn, July, 482
Cortisporin Ointment—new size, Burroughs Wellcome, Mar., 195
Cortisporin Otic Drops, Burroughs Wellcome, July, 482
Cortispray Solution, Walker, Aug., 545
Cortomycin Ointment, Bryant, Aug., 545
Cothamid Suspension, Lloyd, Dabney & Westerfield, May, 356
C.V.P. Capsules and Syrup—nonlegend, U.S. Vitamin, Jan., 58
Cytellin Suspension, Lilly, Feb., 122
Cytoferin Tablets, Ayerst, Jan., 58
Cytomel Tablets, SKF, July, 482

D-Ate Capsules, Maney, Mar., 195
Deca-Mulcin Liquid, Mead Johnson, Mar., 195
Deca-Vi-Caps, Mead Johnson, Mar., 195
Deladumone Injection, Squibb, Feb., 123
Delalutin Injection, Squibb, July, 482
Demerol with Atropine Injection, Winthrop, May, 355
Demerol with Scopolamine Injection, Winthrop, May, 355
Dia-Discs For Antibiotic Selection, Reed & Carnrick, Jan., 58
Diovac Syrup; —Pediatric Syrup, Gray, July, 484
Dipyrone Injection, Testagar, May, 355
Donnagesic Extentabs No. 1 and No. 2, Robins, Aug., 545
Doxinate Capsules 20 mg.; —Solution, Lloyd, Feb., 123; —Capsules 60 mg., June, 419
Duo-C.V.P. Capsules, U.S. Vitamin, Aug., 545

Ecolid Chloride Tablets, Ciba, June, 418
E-Ferol Succinate Capsules 200 I.U., Testagar, June, 418
Ergoval Capsules, M. H. Smith, Aug., 544
Escherichia Coli Diagnostic Serums, Lederle, June, 419
Estra-Plex Cream, Rowell, Feb., 123

Fleet Enema, Fleet, Aug., 546
Flexin Tablets, McNeil, Mar., 193
Florinef-S Ophthalmic Ointment; —Suspension, Squibb, July, 484
Fluoro-Ethyl Aerosol, Gebauer, Aug., 546
Fostex Cream; —Cake, Westwood, July, 484
Frenquel Tablets, Merrell, July, 482
Furacin Soluble Dressing (new package), Eaton, Aug., 545

Gallimycin Poultry Formula, Abbott, Aug., 548
Gelcomul Suspension, Commerce Drug, July, 484
Gelfoam Powder, Sterile, Upjohn, June, 420
Geralin Capsules, Walker, July, 484
Gerizyme, Upjohn, Mar., 193
Guth Handi-Mat for Bench Tops, Palo, Mar., 195
Gymens Tablets, Columbus, Aug., 544

Hescor Tablets, Haug, July, 484
Hesper-C Liquid, National Drug, May, 356
Hexadenol—nonlegend, Lincoln, Feb., 124
Hexatina Tablets, Testagar, June, 420
Histionex Capsules, Strasenburgh, Aug., 544
Homagenets—Pediatric, Prenatal, and Therapeutic (Vitamins), Massengill, Jan., 58
Hycodrox Tablets, Columbus, Aug., 546
Hydeltra Tablets 1 mg., Merck S & D, Mar., 195
Hydeltracin Topical Lotion, Merck S & D, July, 482
Hydrobalm Topical Cream, Merck S & D, Aug., 546
Hydrocortisone Acetate Aqueous Suspension, Phila. Ampoule Labs., June, 420
Hydrocortisone Acetate Ointment, Bryant, June, 420

Inversine Tablets, Merck S & D, June, 418
Isodine Solution, Isodine, Aug., 547
Isopto Carpine Solution 0.25% and 3%, Alcon, Aug., 546
Isopto Cetamide Solution—new size, Alcon, Aug., 546

Kalnatal Tablets, Maney, Aug., 546
Kemadrin Tablets, Burroughs Wellcome, Feb., 123
Kradon Tablets, Field, June, 420
Kwell Lotion and Cream, Reed & Carnrick, June, 420

Lan-O-Let Hand Cleaner, Braun, Mar., 195
Lipo-Diazine Suspension, Donley-Evans, Jan., 59
Lipo-Triazine Suspension, Donley-Evans, Jan., 59
Lorinal Capsules and Drops, Arnar-Stone, Jan., 59
Lullamin Drops, Reed & Carnrick, Aug., 546

Mediatric Tablets, Ayerst, July, 484
Medihaler Oral Adapter, Riker, April, 259
Medihaler-Epi Oral Inhalation, Riker, April, 259
Medihaler-Iso Oral Inhalation, Riker, April, 259
Medi-Mist Nasal Spray, Vick, Jan., 59
Mepherin Tablets, Harvey, June, 418
Mephyton Tablets, Merck S & D, Aug., 546
Meratran Tablets 2.5 mg., Merrell, July, 484
Meticortelone Capsules, Schering, Jan., 59
Meticorten Capsules, Schering, Jan., 59

(Continued on page 550)

Cumulative NPP Index

• • • • • • • • • • • • *continued*

Meti-Derm Cream, Schering, June, 418
Metimyd Ophthalmic Suspension, Schering, May, 356
Metreton Nasal Spray; —Tablets, Schering, Aug., 545
Modane Mild Tablets, Warren-Teed, Aug., 546
Modane Tablets, Warren-Teed, Mar., 194
Morphine and Codeine Injections, Vitarine, June, 420
Mucogel and Mucogel-B Tablets, Barrows, Mar., 194
Mybasal Tablets, Lloyd, Dabney & Westerfield, June, 420
Mybasal with Dipyrone Capsules, Lloyd, Dabney & Westerfield, June, 420
Myoflex Creme, Warren-Teed, June, 420
Mysoline Suspension, Ayerst, April, 259

Nartate Solution and Tablets, Harvey, Jan., 59
Nembudeine Filmtab without Codeine, Abbott, June, 420
Neobile Tablets, Haug, July, 484
Neocydex Tablets, Central, June, 420
Neo-Delta-Cortef Eye-Ear Drops 0.25%, Upjohn, June, 418; —Eye-Ear Ointment, June, 420
Neo-Delta-Cortef Nasal Spray, Upjohn, Aug., 546
Neo-Delta-Cortef Ointment, Upjohn, Mar., 194; —Drops, April, 260
Neomycin Sulfate Ointment, Bryant, Jan., 59
Neosporin Ophthalmic Solution, Burroughs Wellcome, Jan., 58
Neovar Tablets, Maney, Mar., 194
Nika Caps, Maney, Mar., 196
Noludar Tablets, Hoffmann-La Roche, Mar., 196
Nop-Dry Vitamin A, Nopco, April, 260
Novahistine with APC, Pitman-Moore, Jan., 59
Novahistine with Penicillin Capsules, Pitman-Moore April 258

Opal Ointment Jars, Owens-Illinois, July, 484
Opticlear Snap-Cap Vials, Kimble, Aug., 546

Pabirin AC Capsules, Smith-Dorsey, July, 484
Pamine Sterile Solution, Upjohn, Jan., 59
Parvex Powder (Vet.), Upjohn, Mar., 196
Paskate Pulvules, Lilly, Aug., 545
Pathilon Parenteral, Lederle, April, 260
Pediatric Abbo-Liter Containers 150 cc., Abbott, April, 260
Perazil Tablets 25 mg., Burroughs Wellcome, Jan., 59
Persistin Tablets, Sherman, July, 484
Pincets Lozenges, Walker, April, 260
Pipizan Citrate Syrup, Merck S & D, April, 260
Piptal Pediatric Liquid, Lakeside, July, 484
Plastic Blood Pack, Fenwal, April, 260
Poliomyelitis Vaccine, Merck S & D, July, 483
Polycycline Aqueous with Triple Sulfonamides, Bristol, Mar., 196
Polysal Elixir, Cutter, Feb., 123
Pomalin Suspension, Winthrop, Aug., 546
Pradase Tablets, Miller, July, 485
Pre-Natal Capsules—new formula, West-ward, June, 420
Protosil Ointment, Bryant, Aug., 546
Pryme Capsules, Field, July, 485

Radiation Dosimeter, Electromation, Jan., 59
Raudonna Tablets, VanPelt & Brown, April, 258
Raurine Tablets 0.5 and 1 mg., Lloyd, Dabney & Westerfield, July, 485
Rauwolfia Serpentina with Veratrum Viride Tablets, Westward, Jan., 60
Rectal Desitin Ointment, Desitin, July, 485
Redifact Forte Elixir, Merck S & D, Aug., 546
Redifact Forte Tablets, Merck S & D, Feb., 123
Redifact Tablets, Merck S & D, Feb., 123
Renir Tablets, Massengill, Aug., 546
Renografin Injection (Diagnostic), Squibb, Jan., 60
Reserpine Alkaloid Tablets, West-ward, Mar., 196
Reserpine Elixir, Bryant, Jan., 60
Reserpine Injection, Phila. Ampoule Labs., Aug., 545
Reserpine T.D. Capsules, West-ward, Aug., 547
Reserpine with Mebaral Tablets, Winthrop, July, 483
Reserpoid Tablets 4 mg., Upjohn, July, 485
Rhulispray Aerosol, Lederle, July, 485
Ritalin Tablets, Ciba, June, 418
Ro-Bile Tablets, Rowell, Jan., 60
Roxel Elixir, Merck S & D, July, 485
Rutaminal-RQ Tablets, Schenley, Feb. 123

Salimeph-C/Codeine Phosphate Tablets, Kremers-Urban, Jan., 60
Salimeph-C/Colchicine Tablets, Kremers-Urban, Jan., 60
Sandostene Tablets, Sandoz, July, 483
Sandostene + Calcium Injection, Sandoz, July, 483
Sandril Solution and Tablets, 5 mg., Lilly, Feb., 123
Serpatilin Tablets, Ciba, June, 418
Serpedon Elixir, Walker, Jan., 60
Silconex Ointment, Hygeine Research, Aug., 547
Silmidate-M with Codeine Tablets, Haskell, Aug., 547
Sippyplex Powder, Purdue Frederick, April, 258
Snake Bite Kit, McDonald, Feb., 124
Solvilith Tablets, Miller, July, 485
Somatovite Tablets, Purdue Frederick, May, 356
Sparine Hydrochloride—Tablets and Injection, Wyeth, May, 356
Steclin Syrup, Squibb, July, 485
Sterane Tablets 1 mg., Pfizer, Mar., 196
Sterisil Vaginal Gel, Warner-Chilcott, June, 419
Stilphostrol Solution, Ames, Feb., 124
Stokes Tablet Hardness Tester, Stokes, Mar., 196
Sulfid B-A Tablets, Columbus, Aug., 547
Sulfid Pediatric Suspension; —Tablets, Columbus, Aug., 547
Suppository Formulations, Suppositoria Laboratories, Feb., 124

Tarcortin Cream, Reed & Carnick, Feb., 124; new size, Mar., 196
Tashan Cream, Hoffmann-La Roche, July, 485
Teolaxin Capsules, Maney, Mar., 196
Terrabon Homogenized Mixture, Pfizer, June, 419
Tes-Tape for Urine Sugar Test, Lilly, April, 260
Testaldiol Buccal Tablets, Meyer, Aug., 547
Testavol-S Capsules, Testagar, July, 485
Thalajen Tablets and Cream, Jenkins, Mar., 196
Theobarb-R Tablets, VanPelt & Brown, Aug., 547
Theracombin Syrup, Bryant, Mar., 196
Thiamine Mononitrate, Free-Flowing, Merck S & D, July, 485
Thiosulfil Solution, Ophthalmic and Nasal, Ayerst, Jan., 60
Thora-Dex Tablets No. 1 and No. 2, SKF, May, 356
Thorazine Suppositories 25 and 100 mg., SKF, Mar., 194
Titralac-SP, Schenley, July, 485
Tolagesic c Codeine Tablets, Miller, July, 485
Toloxidyne Tablets, Harvey, Jan., 60
Topicort Spray, Roussel, April, 260
Topitracin, Reed & Carnrick, June, 420
Tridal Tablets, Lakeside, Feb., 124
Trimester Capsules, Haug, Aug., 547
Trinalis Supprettes, Webster, Feb., 124
Tri-Synar Plus Tablets, Armour, Aug., 547
Tritheon Tablets, Ortho, June, 419
Trobex Injection, Testagar, June, 419
Tylandril Tablets, Lilly, April, 259

Unette Dispenser, Unette, Feb., 124
Unicap Therapeutic Tablets, Upjohn, Aug., 547
Uritral Capsules, Central, June, 419

Vanulets Captabs, Bryant, Aug., 547
V-Cillin Pediatric for Suspension, Lilly, Mar., 194
V-Cillin Pulvules 250 mg., Lilly, Mar., 196
V-Cillin-Sulfa Tablets, Lilly, June, 419
Vibruden Injection, Phila. Ampoule Labs., Mar., 195
Vi-Mix Drops, Lilly, Mar., 195
Vio-Lax Tablets, Rowell, Jan., 60
Vio-Natal Tablets, Rowell, April, 260
Vi-Syneral Vitamin Drops Fortified, U.S. Vitamin, April, 260

Zestamin Captabs, Bryant, Aug., 547
Ziradryl Lotion, Parke Davis, Aug., 547
Zylax Tablets, Glidden, Aug., 547

Listed by Manufacturer

Abbott Laboratories
Aspirin (Aluminum Salt) Dulcet Tablets, April, 259
Calcidrine Syrup, Mar., 193
Gallimycin Poultry Formula, Aug. 548
Nembudeine Filmtab without Codeine, June, 420
Pediatric Abbo-Liter Containers, 150 cc., April, 260

Alcon Laboratories, Inc.
Isopto Carpine Solution 0.25% and 3%, Aug., 546
Isopto Cetamide Solution—new size, Aug., 546

American Cyanamid Company
Aurovim Poultry Powder (Vet.), Aug., 547

Ames Company, Inc.
Clinistix for Urine Sugar Test, Mar., 195
Stilphostrol Solution, Feb., 124

Armour Laboratories
Chymar Injection, Mar., 193
Tri-Synar Plus Tablets, Aug., 547

Arnar-Stone Laboratories, Inc.
Americaine Aerosol—new size, April, 259
Lorinal Capsules and Drops, Jan., 59

Ayerst, McKenna & Harrison Ltd.
Cytoferin Tablets, Jan., 58
Mediatric Tablets, July, 484
Mysoline Suspension, April, 259
Thiosulfil Solution, Ophthalmic and Nasal, Jan., 60

Barrows Chemical Company, Inc.
Mucogel and Mucogel-B Tablets, Mar., 194

Boyle & Company
Citra Capsules; —Cough Syrup, July 483

Braun Laboratories
Lan-O-Let Hand Cleaner, Mar., 195

Bristol Laboratories, Inc.
Polycycline Aqueous with Triple Sufonamides, Mar., 196

Bryant Pharmaceutical Corp.
Biocol Cold Capsules, May, 356
Cortomycin Ointment, Aug., 545
Hydrocortisone Acetate Ointment, June, 420
Neomycin Sulfate Ointment, Jan., 59
Protosil Ointment, Aug., 546
Reserpine Elixir, Jan., 60
Theracombin Syrup, Mar., 196
Vanulets Captabs, Aug., 547
Zestamin Captabs, Aug., 547

Burroughs Wellcome & Company (USA), Inc.
Cortisporin Ointment—new size, Mar., 195
Cortisporin Otic Drops, July, 482

Kemadrin Tablets, Feb., 123
Neosporin Ophthalmic Solution, Jan., 58
Perazil Tablets 25 mg., Jan., 59

Central Pharmacal Company
Neocydex Tablets, June, 420
Uritral Capsules, June, 419

Ciba Pharmaceutical Products, Inc.
Ecolid Chloride Tablets, June, 418
Ritalin Tablets, June, 418
Serpatilin Tablets, June, 418

Columbus Pharmacal Company
Bubartal Sodium Injection, Aug., 544
Gymens Tablets, Aug., 544
Hycodrox Tablets, Aug., 546
Sulfid B-A Tablets, Aug., 547
Sulfid Pediatric Suspension; —Tabets, Aug., 547

Commerce Drug Co., Inc.
Gelcomul Suspension, July, 484

Cutter Laboratories
Polysal Elixir, Feb., 123

Davidson Associates
Conceptulator for Timing Conception, Feb., 124

Desitin Chemical Company
Rectal Desitin Ointment, July, 485

Donley-Evans & Company
Lipo-Diazine Suspension, Jan., 59
Lipo-Triazine Suspension, Jan., 59

Eaton Laboratories
Furacin Soluble Dressing (new package), Aug., 545

Paul B. Elder Company
Benoquin Lotion, July, 483

Electromation Company
Radiation Dosimeter, Jan., 59

Essex County (N.J.) Heart Association
Cardiac Emergency Kit, July, 484

Fenwal Laboratories, Inc.
Plastic Blood Pack, April, 260

Field Laboratories, Inc.
Kradon Tablets, June, 420
Pryme Capsules, July, 485

C. B. Fleet Co., Inc.
Fleet Enema, Aug., 546

Otis E. Glidden & Co., Inc.
Zylax Tablets, Aug., 547

The Gebauer Chemical Company
Fluoro-Ethyl Aerosol, Aug., 546

Gray Pharmaceutical Co., Inc.
Diovac Syrup; —Pediatric Syrup, July, 484

Grove Laboratories, Inc.
Citroid Compound Capsules, Mar., 195

The G. F. Harvey Company
Mepherin Tablets, June, 418
Nartate Solution and Tablets, Jan., 59

Charles C. Haskell & Co., Inc.
Toloxidyne Tablets, Jan., 60
Belbarb B Tablets, Feb., 124
Belbarb Trisules, Feb., 124
Silmidate-M with Codeine Tablets, Aug., 547

Haug Drug Company
Hescor Tablets, July, 484
Neobile Tablets, July, 484
Trimester Capsules, Aug., 547

Hoffmann-La Roche Inc.
Alurate Elixir—flavor change, Feb., 124
Asterol Products—nonlegend, Aug., 545
Azo Gantrisin Tablets, May, 355
Noludar Tablets, Mar., 196
Tashan Cream, July, 485

Isodine Pharmacal Corporation
Isodine Solution, Aug., 547

Jenkins Laboratories, Inc.
Thalajen Tablets and Cream, Mar., 196

Kimble Glass Company
Opticlear Snap-Cap Vials, Aug., 546

Kremers-Urban Company
Salimeph-C/Codeine Phosphate Tablets, Jan., 60
Salimeph-C/Colchicine Tablets, Jan., 60

Lakeside Laboratories, Inc.
Caytine—clinical trial in asthma, April, 259
Piptal Pediatric Liquid, July, 484
Tridal Tablets, Feb., 124

Lederle Laboratories Division, American Cyanamid Co.
Achrocidin Tablets, April, 258
Aquavac Infectious Bronchitis Vaccine (Vet.), July, 483
Aquavac Newcastle Disease Vaccine (Vet.), July, 483
Aureomycin Poultry Formula (Vet.), Mar., 195; —Powder, May, 356
Escherichia Coli Diagnostic Serums, June, 419
Pathilon Parenteral, April, 260
Rhulispray Aerosol, July, 485

Eli Lilly and Company
Compren Pulvules, May, 356
Cytellin Suspension, Feb., 122
Paskate Pulvules, Aug., 545
Sandril Solution and Tablets, 5 mg., Feb., 123
Tes-Tape for Urine Sugar Test, April, 260
Tylandril Tablets, April, 259
V-Cillin Pediatric for Suspension, Mar., 194
V-Cillin Pulvules 250 mg., Mar., 196
V-Cillin-Sulfa Tablets, June, 419
Vi-Mix Drops, Mar., 195

Lincoln Laboratories, Inc.
Hexadenol—nonlegend, Feb., 124

Lloyd Bros., Inc.
Alu-Scop Capsules and Suspension, May, 355
Cothamid Suspension, May, 356
Doxinate Capsules 20 mg., —Solution, Feb., 123; —Capsules 60 mg., June, 419

Lloyd, Dabney & Westerfield, Inc.
Mybasal Tablets, June, 420
Mybasal with Dipyrone Capsules, June, 420
Raurine Tablets 0.5 and 1 mg., Lloyd, Dabney & Westerfield, July, 485

Paul Maney Laboratories
Andira Tablets, Aug., 545
B-Telve Tablets, Mar., 193
Cal-O-Nol w/Antihistamine, June, 419
D-Ate Capsules, Mar., 195
Kalnatal Tablets, Aug., 546
Neovar Tablets, Mar., 194
Nika Caps, Mar., 196
Teolaxin Capsules, Mar., 196

The S. E. Massengill Company
Homagenets—Pediatric, Prenatal, and Therapeutic, (Vitamins), Jan., 58
Renir Tablets, Aug., 546

B. F. McDonald Company
Snake Bite Kit, Feb., 124

McNeil Laboratories, Inc.
Butiserpine Elixir, Aug., 545
Flexin Tablets, Mar., 193

Mead Johnson & Co.
Colace Capsules and Solution, May, 356
Deca-Mulcin Liquid, Mar., 195
Deca-Vi-Caps, Mar., 195

Merck Sharp & Dohme
Albumisol 25% Concentration, July, 482
Aramine Bitartrate Injection, Aug., 544
Cathomycin Capsules, Aug., 544
Co-Deltra Tablets 5 mg., April, 259; —2.5 mg., June, 419
Co-Hydeltra Tablets 5 mg., April 259; —2.5 mg., June, 419
Hydeltra Tablets 1 mg., Mar., 195
Hydeltracin Topical Lotion, July, 482
Hydrobalm Topical Cream, Aug., 546
Inversine Tablets, June, 418
Mephyton Tablets, Aug., 546
Pipizan Citrate Syrup, April, 260
Poliomyelitis Vaccine, July, 483
Redifact Forte Elixir, Aug., 546
Redifact Forte Tablets, Feb., 123
Redifact Tablets, Feb., 123
Roxel Elixir, July, 485
Thiamine Mononitrate, Free-Flowing, July, 485

The William S. Merrell Company
Bentyl Hydrochloride Injection—new dosage size, July, 483
Frenquel Tablets, July, 482
Consol Suspension, April, 258
Meratran Tablets 2.5 mg., July, 484

Meyer and Company (Meyer Chemical Co.)
Almebex Plus B_{12} Elixir, Aug., 545
Almethine Duracap Capsules, Jan., 58
Almetrifon Germicidal Detergent, July, 483
Testaldiol Buccal Tablets, Aug., 547

Miller Laboratories, Inc.
Anatoid Suppositories, Jan., 58

E. S. Miller Laboratories, Inc.
Pradase Tablets, July, 485
Solvilith Tablets, July, 485
Tolagesic c Codeine Tablets, July, 485

National Drug Co.
Hesper-C Liquid, May, 356

Nopco Chemical Company
Nop-Dry Vitamin A, April, 260

Ortho Pharmaceutical Corp.
Tritheon Tablets, June, 419

Owens-Illinois
Opal Ointment Jars, July, 484

Palo Laboratory Supplies, Inc.
Guth Handi-Mat for Bench Tops, Mar., 195

Olaf Paris, Apothecary
Collapsible Tube Filler, April, 259

Parke, Davis & Company, Inc.
Camoform HCl Tablets, Mar., 193
Ziradryl Lotion, Aug., 547

Pfizer Laboratories, Chas. Pfizer & Company, Inc.
Bonadettes Tablets, Aug., 545
Sterane Tablets 1 mg., Mar., 196
Terrabon Homogenized Mixture, June, 419

Philadelphia Ampoule Laboratories
Hydrocortisone Acetate Aqueous Suspension, June, 420
Reserpine Injection, Aug., 545
Vibruden Injection, Mar., 195

Pitman-Moore Company
Novahistine with APC, Jan., 59
Novahistine with Penicillin Capsules, April, 258

I. E. Prince Pharmaceuticals
Aci-Derma Lotion, July, 483

Purdue Frederick Company
Sippyplex Powder, April, 258
Somatovite Tablets, May, 356

Reed & Carnrick
Dia-Discs For Antibiotic Selection, Jan., 58
Kwell Lotion and Cream, June, 420
Lullamin Drops, Aug., 546
Tarcortin Cream, Feb., 124; new size, Mar., 196
Topitracin, June, 420

Cumulative NPP Index

• • • • • • • • • • • • *continued*

Riker Laboratories, Inc.
Medihaler Oral Adapter, April, 259
Medihaler-Epi Oral Inhalation, April, 259
Medihaler-Iso Oral Inhalation, April, 259
A. H. Robins Company, Inc.
Donnagesic Extentabs No. 1 and No. 2, Aug., 545
J. B. Roerig & Company, Division Chas. Pfizer & Co., Inc.
Atarax Tablets, July, 482
Roussel Corporation
Topicort Spray, April, 260
Rowell Laboratories, Inc.
Estra-Plex Cream, Feb., 123
Ro-Bile Tablets, Jan., 60
Vio-Lax Tablets, Jan., 60
Vio-Natal Tablets, April, 260
Sandoz Pharmaceuticals
Sandostene Tablets, July, 483
Sandostene + Calcium Injection, July, 483
Schenley Laboratories, Inc.
Rutaminal-RQ Tablets, Feb., 123
Titralac-SP, July, 485
Schering Corporation
Meticortelone Capsules, Jan., 59
Meticorten Capsules, Jan., 59
Meti-Derm Cream, June, 418
Metimyd Ophthalmic Suspension, May, 356
Metreton Nasal Spray; —Tablets, Aug., 545
Sharp & Dohme, *see under* **Merck Sharp & Dohme**
Sherman Laboratories
Persistin Tablets, Sherman, July, 484
Martin H. Smith Company
Ergoval Capsules, Aug., 544
Smith-Dorsey Division Wander Company
Pabirin AC Capsules, July, 484
Smith, Kline & French Laboratories, Inc.
Cytomel Tablets, July, 482
Thora-Dex Tablets No. 1 and No. 2, May, 356
Thorazine Suppositories 25 and 100 mg., Mar., 194
E. R. Squibb & Sons, Div., Olin Mathieson Chemical Corp.
Deladumone Injection, Feb., 123
Delalutin Injection, July, 482
Florinef-S Ophthalmic Ointment; —Suspension, July, 484
Renografin Injection (Diagnostic), Jan., 60
Steclin Syrup, July, 485
F. J. Stokes Machine Co.
Stokes Tablet Hardness Tester, Mar., 196
R. J. Strasenburgh Co.
Biphetamine Resin Capsules, Feb., 122
Histionex Capsules, Aug., 544
Suppositoria Laboratories
Suppository Formulations, Feb., 124
Sutliff & Case Co., Inc.
Bufazo Capsules, July, 483
Testagar & Company, Inc.
Ascorbacaine Capsules, May, 355
Bismuth Subsalicylate Injection, May, 356
Dipyrone Injection, May, 355
E-Ferol Succinate Capsules 200 I.U., June, 418
Hexatina Tablets, June, 420
Testavol-S Capsules, July, 485
Trobex Injection, June, 419
Unette Corporation
Unette Dispenser, Feb., 124
U.S. Standard Products Company
Ascorutin-Bio Tablets, U.S. Standard, July, 483
U.S. Vitamin Corporation
Aquasol A Cream with Panthoderm, Mar., 195
C.V.P. Capsules and Syrup—nonlegend, U.S. Vitamin, Jan., 58
Duo-C.V.P. Capsules, Aug., 545
Vi-Syneral Vitamin Drops Fortified, April, 260
The Upjohn Company
Albamycin Capsules, Aug., 544
Aqua-B with Ascorbic Acid Injection, April, 258
Cordex Forte Tablets, July, 482
Gelfoam Powder, Sterile, June, 420
Gerizyme, Mar., 193
Neo-Delta-Cortef Eye-Ear Drops 0.25%, June, 418 —Eye-Ear Ointment, June, 420
Neo-Delta-Cortef Nasal Spray, Aug., 546
Neo-Delta-Cortef Ointment, Mar., 194; —Drops, April 260
Pamine Sterile Solution, Jan., 59
Parvex Powder (Vet.), Mar., 196
Reserpoid Tablets 4 mg., July, 485
Unicap Therapeutic Tablets, Aug., 547
Vale Chemical Company, Inc.
Binitrin Tablets, Aug., 545
VanPelt & Brown, Inc.
Raudonna Tablets, April, 258
Theobarb-R Tablets, Aug., 547
Vick Chemical Company
Medi-Mist Nasal Spray, Jan., 59
The Vitarine Co., Inc.
Morphine and Codeine Injections, June, 420
Walker Laboratories, Inc.
Bacimycin with Hydrocortisone Ointment, Aug., 545
Cortispray Solution, Aug., 545
Geralin Capsules, July, 484
Pincets Lozenges, April, 260
Serpedon Elixir, Jan., 60
Warner-Chilcott Laboratories
Sterisil Vaginal Gel, June, 419
The Warren-Teed Products Co.
Axofor Capsules, Aug., 544
Cal-O-B Tablets, June, 419
Modane Tablets, Mar., 194
Modane Mild Tablets, Aug., 546
Myoflex Creme, June, 420
The Wm. A. Webster Company
Trinalis Supprettes, Feb., 124
West-ward, Inc.
Pre-Natal Capsules—new formula, June, 420
Rauwolfia Serpentina with Veratrum Viride Tablets, Jan 60
Reserpine Alkaloid Tablets, Mar., 196
Reserpine T.D. Capsules, Aug., 547
Westwood Pharmaceuticals
Fostex Cream; —Cake, July, 484
White Laboratories, Inc.
Cerofort Elixir and Tablets, Feb., 122
Winthrop Laboratories Inc.
A.P.C. with Demerol Tablets, May, 355
Demerol with Atropine Injection, May, 355
Demerol with Scopolamine Injection, May, 355
Pomalin Suspension, Aug., 546
Reserpine with Mebaral Tablets, July, 483
Wyeth Inc.
Sparine Hydrochloride—Tablets and Injection, May, 356

ADVERTISING INDEX

Abbott Laboratories
Sur-Bex ..... inside front cover
The American Druggists' Insurance Company 537
Hynson, Westcott & Dunning, Inc.
Lutrexin Tablets ..... outside back cover
Eli Lilly and Company
Multicebrin 490
Merck Sharp & Dohme
Name change 499
Parke, Davis & Company
Caladryl 495
Schering Corporation
Meticorten, Meticortelone ..... see insert opposite page 504
Smith, Kline & French Laboratories
Benzedrex Inhaler 489
The Upjohn Company
Kaopectate ..... inside back cover
Warner-Chilcott Laboratories
Sterisil 529
Winthrop Laboratories, Inc.
pHisoHex 505

Don't forget **National Pharmacy Week** Oct. 7–13, 1956.